

**EMERGENCY RESPONSE AND REMOVAL REPORT**  
**FOR**  
**LARD OIL COMPANY OIL SPILL**  
**914 FLORIDA AVENUE, SW**  
**DENHAM SPRINGS, LIVINGSTON PARISH, LOUISIANA**

Prepared for

**U.S. Environmental Protection Agency**  
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Technical Direction Document No. 2/WESTON-042-16-020  
WESTON W.O. No. 20406.012.002.1037.01  
NRC Nos. 1156486 and 1156749  
FPN ID E16620  
SEMS ID N/A  
EPA OSC Bryant Smalley  
START-3 PTL Keith Delhomme

Submitted by

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## PROJECT SUMMARY

This final report describes the U.S. Environmental Protection Agency (EPA) response actions for the Lard Oil Company Oil Spill response. The release occurred at the Lard Oil blending and distributing facility located at 914 Florida Avenue SW in Denham Springs, Livingston Parish, Louisiana as a result of catastrophic flooding that began on 13 August 2016. Lard Oil representatives estimated that approximately 300 to 600 gallons of unused lubricating oil and synthetic grease and 451 gallons of unused diesel exhaust fluid additive was released from the facility into the floodwaters. Discharged oil products impacted approximately 65 residential and commercial properties in a southeasterly direction from the facility before any remaining product was carried away in floodwaters. The detailed report follows this summary, and all attachments are provided as separate portable document format (PDF) files.

On 17 August 2016, a resident adjacent to the Lard Oil facility reported to the National Response Center (NRC) (Report No. 1156486) a discharge of an unknown amount of oil from the Lard Oil Company facility into the adjacent residential neighborhood. In response to the call, EPA Region 6 Emergency Management Branch (EMB) On-scene Coordinator (OSC) Bryant Smalley activated the EPA Region 6 Superfund Technical Assessment and Response Team (START-3) contractor to initiate a Tier 1 Response. The EPA Team was tasked to respond to the incident, provide written and photographic documentation of the activities, and conduct sampling for oil analysis. The EPA Team mobilized to the site on 18 August 2016 and began documenting conditions at the scene. EPA noted displaced oil tanks at the rear of the Lard Oil facility and on adjacent residential properties. Additionally, oil was observed in roadside ditches and on vegetation as well as on the outer walls of houses and buildings on properties southeast of Lard Oil. Consequently, EPA provided verbal and written direction (via Notice of Federal Interest [NOFI] letter) that Lard Oil, as responsible party (RP), must report the discharge to the NRC, activate a response, and provide daily updates to EPA.

On 19 August 2016, after verbal direction from EPA, a representative of Lard Oil reported a discharge of an unknown amount of oil from their facility to the NRC (Report No. 1156749). The two separate NRC reports referenced the same oil discharge incident.

Lard Oil began response activities on 18 August 2016 and hired PPM Associates of Baton Rouge, Louisiana to manage response and removal activities. The RP conducted assessments of individual



properties and removal actions after procuring signed access agreements. Removal activities included oiled vegetation removal, soil and sediment excavation, wooden fence removal and replacement, exterior building pressure-washing, and ditch dredging. The EPA Team collected separate, signed access agreements and documented RP actions via logbook and digital photography. The EPA Team conducted indoor air monitoring for volatile organic compounds (VOCs); no measurements were recorded greater than 1 part per million (ppm). Due to the concerns of affected residents, the Louisiana Department of Health and Hospitals (LDHH) agreed to take the lead to address indoor air quality concerns. Further, the Louisiana Department of Environmental Quality (LDEQ) agreed to provide oversight of soil remediation activities when visible oil was removed from properties where access was granted.

The EPA Team collected 6 potential spill-source samples from the Lard Oil facility and 12 samples off-site from downstream residential and commercial properties. Samples were shipped to the United States Coast Guard (USCG) Marine Safety Laboratory for oil identification and comparative analyses. Eight of the 12 off-site samples were identified as lubricating oil or primarily lubricating oil; analytical results stated that 4 of the 8 exhibited “important similarities” to suggest that they are related to one of the potential source samples.

On 15 September 2016, after LDEQ approval of a Sampling and Analysis Plan, the RP began collecting soil samples from properties where contamination had been documented. A minimum of three surface samples were collected per property. Samples were shipped to an off-site laboratory for analysis of aliphatics/aromatics in the appropriate carbon range by the Massachusetts Department of Environmental Protection (MADEP) Extractable Petroleum Hydrocarbons (EPH) method. The RP completed the soil removal and confirmation sampling on 28 September 2016.

On 29 September 2016, EPA OSC Bryant Smalley conducted a final site-walk to verify that visible oil had been removed from properties where access was granted. Visible oil contamination was observed to have been removed from the subject properties. As agreed by participating agencies, LDEQ and LDHH assumed the lead regarding further remediation activities and oversight of indoor air quality issues, respectively. Lard Oil began submitting Risk Evaluation/Correction Action Plan (RECAP) reports to LDEQ on each property where clean-up activities were conducted. A total of 52 reports will be submitted, including 1 report for the Lard Oil facility.

This report was prepared to describe the technical scope of work that was completed as part of Technical Direction Document (TDD) No. 2/WESTON-042-16-020. EPA OSC Bryant Smalley provided direction for the response, and the START-3 Project Team Leader (PTL) was Keith Delhomme.

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The EPA Task Monitor did not provide final approval of this report prior to the completion date of the work assignment. Therefore, Weston Solutions, Inc. has submitted this report absent the Task Monitor's approval.

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## **TABLE OF CONTENTS**

### **EMERGENCY RESPONSE AND REMOVAL REPORT**

#### **PROJECT SUMMARY**

#### **TABLE OF CONTENTS**

- 1. INTRODUCTION**
- 2. BACKGROUND**
- 3. SUMMARY OF ACTIONS**
- 4. ANALYTICAL RESULTS**
- 5. LIST OF ATTACHMENTS**

## 1. INTRODUCTION

On 18 August 2016, the U.S. Environmental Protection Agency (EPA) Region 6 Emergency Management Branch (EMB) activated Weston Solutions, Inc. (WESTON®), the EPA Region 6 Superfund Technical Assessment and Response Team (START-3) contractor, to conduct a Tier 1 incident response. Under direction from EPA On-scene Coordinator (OSC) Bryant Smalley and as outlined in Technical Direction Document (TDD) No. 2/WESTON-042-16-020 (Attachment O), START-3 was tasked to assess the impact of an oil spill and associated response activities; provide written and photographic documentation; provide technical support to EPA; provide site mapping; conduct website updates; and complete this Final Report.

The geographic coordinates of the Lard Oil Company (Lard Oil) Site are Latitude 30.475797° North and Longitude 90.960069° West. The coordinates were determined using a handheld global positioning system (GPS) based on the World Geodetic System – 1984 (WGS-84) with accuracy estimated at less than 50-feet circular probable error. The address of Lard Oil is 914 Florida Avenue SW, Denham Springs, Livingston Parish, Louisiana. A Site Location Map and a Site Area Map are included as Attachments A and B, respectively.

On 17 August 2016, a resident adjacent to the Lard Oil facility reported to the National Response Center (NRC) (Report No. 1156486) a discharge of an unknown amount of oil from the facility into the adjacent residential neighborhood. Additionally, on 19 August 2016, after verbal direction from EPA, a representative of Lard Oil reported a discharge of an unknown amount of oil from their facility to the NRC (Report No. 1156749). The two separate NRC reports referenced the same oil discharge incident (Attachment K). Area stormwater drains eastward to Grays Creek, which flows southeasterly into the Amite River, which continues flowing in a southeastern direction into Lake Maurepas and finally into Lake Pontchartrain, which meets the definition of “navigable waters” of the United States (US) as defined in Section 502(7) of the Federal Water Pollution Control Action (FWPCA).

## 2. BACKGROUND

Beginning 13 August 2016, slow-moving storms produced more than 2 feet of rain in the Denham Springs area, causing catastrophic flooding of the Amite River. According to local reporting,

approximately 70 to 80 % of Denham Springs was flooded by the event, including the Lard Oil facility and the adjacent mixed residential and commercial neighborhood located to the southeast. The houses and commercial buildings were inundated with approximately 6-8 feet of floodwaters. Lard Oil blends and distributes ExxonMobil lubricating oils to oil and gas-related industries in South Louisiana and Mississippi, with headquarters in Denham Springs, Louisiana. According to Lard Oil representatives, the following 8 products were released from their facility as a result of the subject flood:

- Castrol 5W-20 Lubricating Oil
- Castrol 5W-30 Lubricating Oil
- Mobil 5W-30 Lubricating Oil
- ACDelco Dexos 10W-20
- Mobiltrans HD 30 Lubricating Oil
- Mobil DTE FM 32 Lubricating Oil
- Mobilith SHC 460 Synthetic Grease
- Blue Def Diesel Exhaust Fluid

Material Safety Data Sheets (MSDSs) for these products are provided as Attachment E. Lard Oil representatives estimated that approximately 300 to 600 gallons of unused lubricating oil and synthetic grease and 451 gallons of unused diesel exhaust fluid additive were released from the facility into the floodwaters. Discharged oil products impacted houses, office buildings, and vegetation within a 0.05-square-mile area in a southeasterly direction from the facility, before any remaining amount was carried away in floodwaters. To a lesser extent, soils and sediments on the same properties were also impacted.

### 3. SUMMARY OF ACTIONS

On 18 August 2016, the EPA Team mobilized to the site to perform an initial site assessment to determine the extent of the oil discharge. EPA noted displaced oil tanks and containers at the rear of the Lard Oil facility and on adjacent residential properties. Additionally, oil was observed in roadside ditches, on vegetation, and on the exterior walls of houses and buildings on properties southeast of Lard Oil. The approximate boundaries of the impacted off-site area was determined to include (b) (6) (b) (6) to the northwest, (b) (6) to the southwest, (b) (6) to the southeast, and (b) (6) to the northeast (see Site Layout Map provided as Attachment C). The EPA Team documented conditions at the scene in a site logbook and via digital photographs. After

conducting the initial assessment, Lard Oil was identified by EPA OSC Smalley as a responsible party (RP) of this incident. EPA contacted the RP to notify them of the discharge and inform them of their responsibilities; EPA issued the RP a Notice of Federal Interest (NOFI) (Attachment F) on 18 August 2016.

The RP hired PPM Associates from Baton Rouge, Louisiana to manage response and removal activities. Response activities began on 19 August 2016 with a crew of approximately 30 persons removing pooled oil in roadside ditches to prevent further migration of the oil. Concurrently, EPA began monitoring indoor air with a portable photo-ionization detector (PID) for Volatile Organic Compounds (VOCs) inside four houses at the request of owners who expressed concerns about acute health concerns. Prior to entering any property, EPA secured signed access agreements from the property owners (Attachment G). EPA detected no VOC levels greater than 1 part per million (ppm). Additionally, the EPA Team initially collected three samples from the Lard Oil facility (pooled, oily water mixtures) and 6 samples from roadside ditches and rights-of-way (sediments and vegetation) for oil identification and comparative analyses. The samples were collected in accordance with the Quality Assurance Sampling Plan provided as Attachment H, and sample locations are shown on the Sample Location Map provided as Attachment D. The samples were shipped to the U.S. Coast Guard (USCG) Marine Safety Laboratory (MSL) in New London, Connecticut for oil identification and comparative analyses. The MSL Analytical Results are provided as Attachment I. Sample analytical results are discussed in Section 4.

From 20 to 30 August 2016, EPA continued to collect signed access agreements from property owners, conduct indoor air monitoring for VOCs at properties with access, delineate the extent of off-site contamination and monitor assessment and removal activities of the RP. Approximately 65 properties were identified as being potentially impacted by the oil release; of these properties, 55 owners signed EPA access agreements covering 59 properties during this period, including the Lard Oil facility. The RP also collected separate signed access agreements from the same properties. Six property owners denied access to both EPA and the RP. Forty-six properties were identified as having deposits of oil in the yards and 39 having oil staining on the physical exterior of the house or building. EPA recorded no indoor VOCs greater than 1 ppm.

RP removal activities during this period included removing oiled vegetation (trimming plants, mowing grass) and manually cleaning the exterior of contaminated homes and building walls with a degreaser, which was followed by pressure-washing. Additionally, the RP removed contaminated sediment in roadside ditches and contaminated wooden fences where given permission. Contaminated plant clippings and grass were bagged and contaminated sediments were drummed before being staged at a secure location at the Lard Oil facility for waste profile and disposal. Representatives from the Louisiana Department of Environmental Quality (LDEQ) determined that the limited oil residual on removed fences and rags used to wipe oiled exterior walls were de minimis and could be disposed of with other flood debris in the local solid waste stream. Spent pressure-wash water was also determined to be de minimis and was not captured for disposal.

The EPA Team collected a total of 6 additional off-site soil and liquid samples on 22, 24, and 26 August 2016 and 3 additional potential source samples on 28 August 2016. The potential source samples were collected from 5-gallon bulk containers of lubricating oil (Castrol 5W-20 and 5W-30, Mobil 5W-30) that RP representatives stated were similar to the oil released from their facility due to the flood. The bulk containers were procured from another Lard Oil facility as similar product was not available at the Denham Springs facility. RP personnel stated the original vessels that contained the spilled oil were completely empty of product due to the flood and had been washed by workers, leaving no residue for potential sampling. The samples were again shipped to the USCG MSL for oil identification and comparative analyses. The samples were collected in accordance with the QASP (Attachment H) and labeled as described previously. Sample locations are shown on the Sample Location Map (Attachment D). The MSL Analytical Results are provided as Attachment I. Sample analytical results are discussed in Section 4.

On 31 August 2016, Louisiana Department of Health and Hospitals (LDHH) personnel visited the site at the invitation of EPA. LDHH observed the impacted neighborhood and as the Primary Agency responsible for public health, agreed to take the lead addressing any indoor air quality concerns. Further, LDEQ agreed to provide oversight of soil remediation activities once visible oil was removed from properties where access was granted. EPA continued to provide oversight of the RP's assessment and clean-up activities during the first two weeks of September 2016, which consisted of continued removal of contaminated vegetation and initiating removal of contaminated surface soils.

Following LDEQ approval of their Sampling and Analysis Plan in mid-September, the RP began collecting confirmation soil samples from properties where contamination had been documented and a removal occurred. A minimum of 3 surface samples were collected per property, with 1 located along the upstream boundary of each property. The remaining sample locations were biased in areas where soil and/or vegetation removals occurred. Samples were screened for VOCs with a portable ionization detector (PID) and depth samples were collected up to 24 inches below ground surface (bgs) at locations where samples exhibited VOC measurements of approximately 50 parts per million (ppm) or greater. Samples were shipped to an off-site laboratory for analysis of aliphatics/aromatics in the appropriate carbon range by the Massachusetts Department of Environmental Protection (MADEP) Extractable Petroleum Hydrocarbons (EPH) method. The RP completed the soil removal, confirmation sampling, and backfill as necessary with clean material on 28 September 2016. EPA documented the sampling in a logbook and with digital photography.

On 29 September 2016, EPA OSC Smalley conducted a final site-walk to verify that visible oil had been removed from properties where access was granted. Visible oil contamination was observed to have been removed from the subject properties. As agreed by all parties, LDEQ and LDHH would be the lead agencies regarding further remediation activities. The RP began submitting Risk Evaluation/Correction Action Plan (RECAP) reports to LDEQ on each property where clean-up activities were conducted. A total of 52 reports will be submitted, including 1 report for the Lard Oil facility. Three property owners revoked access after previously signing agreements.

#### **4. ANALYTICAL RESULTS**

A total of 6 samples were collected from the potential spill-source at the Lard Oil facility and 12 off-site samples were collected at downstream residential and commercial properties. Sample locations are illustrated on the Sample Location Map provided as Attachment D. Samples were shipped to the USCG MSL for oil identification and comparative analyses. The MSL Laboratory Reports are provided as Attachment I.

Eight of the 12 off-site samples were identified as lubricating oil or primarily lubricating oil; the remaining 4 samples did not have detectable amounts of hydrocarbons. Four of the 8 off-site samples containing oil or primarily oil exhibited important analytical similarities to suggest that they are



related to 1 of the potential source samples (914F-02-08192016). Of the 3 potential source samples that were not bulk product samples, 2 were identified as primarily lubricating oil; however, the analytical data for the 2 identified as primarily lubricating oil did not match the analytical data associated with the 3 potential bulk product source samples. The third non-bulk product potential source sample did not have detectable amounts of hydrocarbons within the sample. An analytical results summary table is provided in Attachment J.

This Final Report was prepared as part of the requirements of TDD No. 2/WESTON-042-16-020 and serves as documentation of work completed. The NRC Reports, Pollution Reports, Digital Photographs, and Site Logbooks are provided as Attachments K through N, respectively.

## **5. LIST OF ATTACHMENTS**

- A. Site Location Map
- B. Site Area Map
- C. Site Layout Map
- D. Sample Location Map
- E. Material Safety Data Sheets
- F. Notice of Federal Interest
- G. Access Agreements
- H. Quality Assurance Sampling Plan (QASP)
- I. Laboratory Analytical Results
- J. Analytical Results Summary
- K. NRC Report Nos. 1156486 and 1156749
- L. Pollution Reports (POLREPs)
- M. Digital Photographs
- N. Site Logbooks
- O. TDD No. 2/WESTON-042-16-020

**ATTACHMENT A**  
**SITE LOCATION MAP**



## LEGEND

● SITE LOCATION



SCALE IN MILES

SOURCE: WORLD STREET MAP; ESRI  
TDD: 2/WESTON-042-16-020  
NRC: 1156749, 1156486



US EPA REGION 6

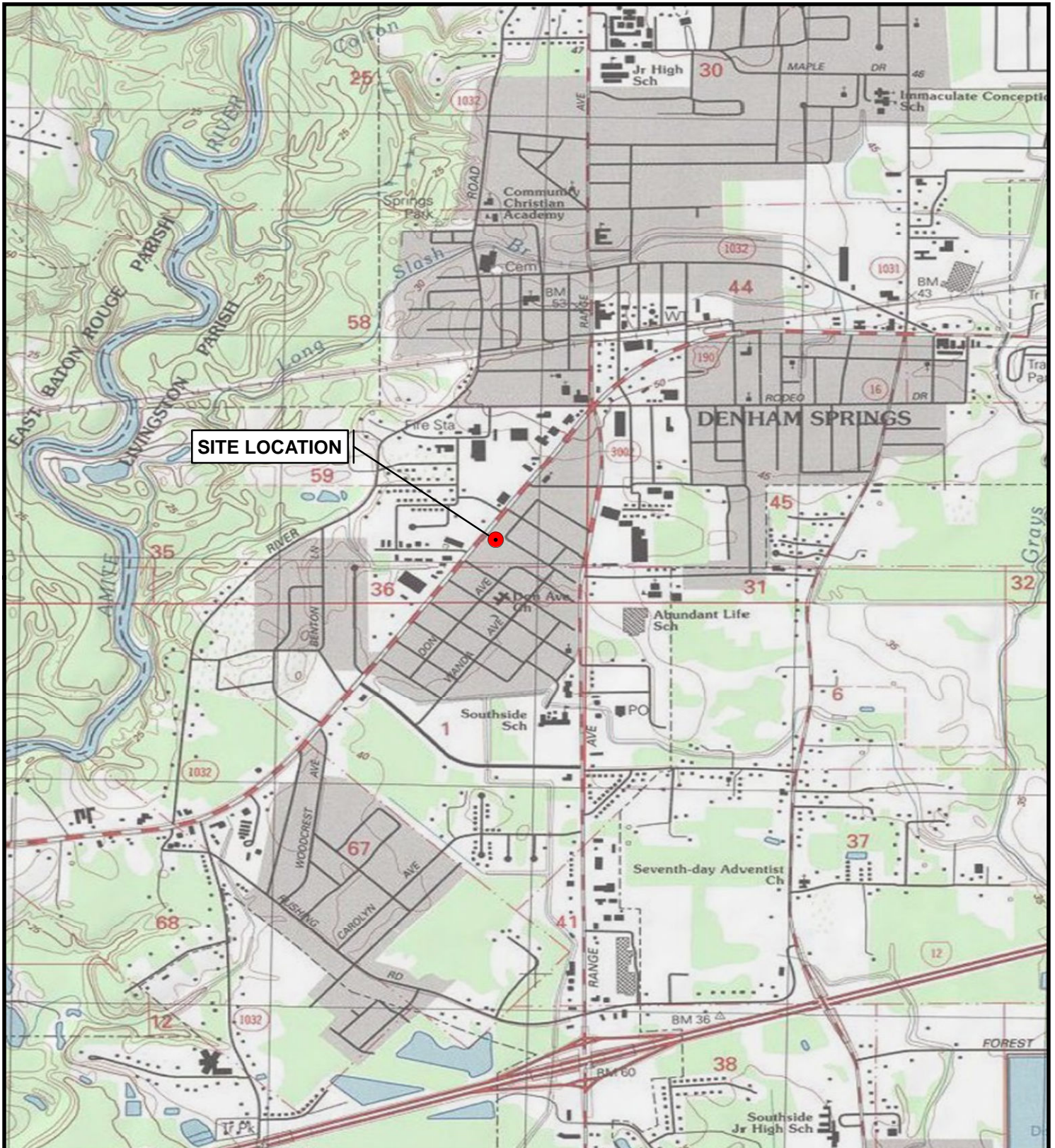
**ATTACHMENT A**  
**SITE LOCATION MAP**  
**LARD OIL COMPANY OIL SPILL**  
**914 FLORIDA AVE SW**  
**DENHAM SPRINGS, LIVINGSTON PARISH, LOUISIANA**

DATE	PROJECT NO	SCALE
DECEMBER 2016	20406.012.002.1037.01	AS SHOWN

**ATTACHMENT B**

**SITE AREA MAP**





## LEGEND

● SITE LOCATION



0 2,000 4,000

SCALE IN FEET



US EPA REGION 6

## ATTACHMENT B SITE AREA MAP LARD OIL COMPANY OIL SPILL 914 FLORIDA AVE SW DENHAM SPRINGS, LIVINGSTON PARISH, LOUISIANA

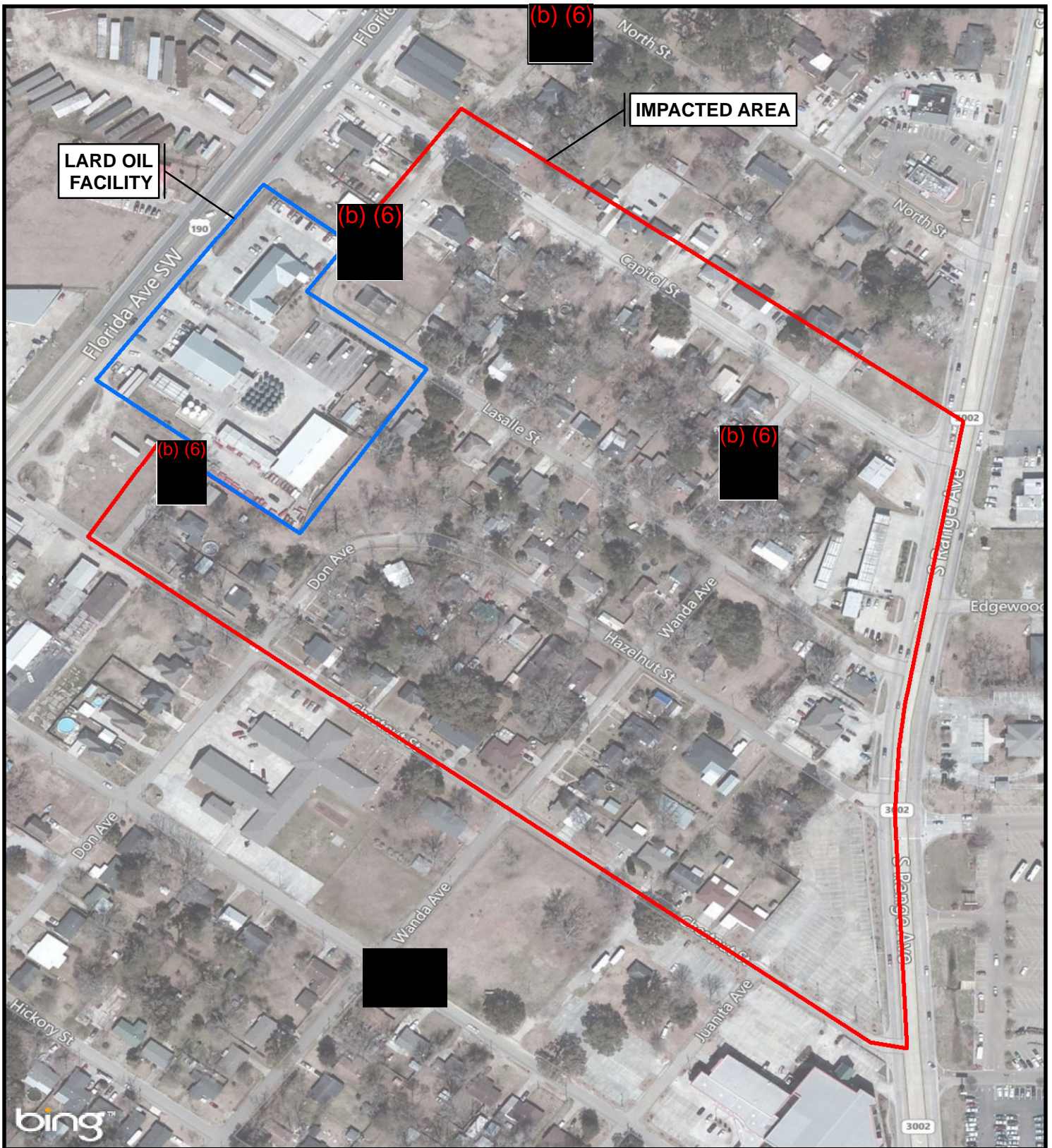
DATE	PROJECT NO	SCALE
DECEMBER 2016	20406.012.002.1037.01	AS SHOWN

SOURCE: BING MAPS AERIAL HYBRID  
TDD: 2/WESTON-042-16-020  
NRC: 1156749, 1156486

**ATTACHMENT C**

**SITE LAYOUT MAP**





## LEGEND

- FACILITY BOUNDARY
- IMPACTED AREA



0 250 500

SCALE IN FEET



US EPA REGION 6

ATTACHMENT C  
SITE LAYOUT MAP  
LARD OIL COMPANY OIL SPILL  
914 FLORIDA AVE SW  
DENHAM SPRINGS, LIVINGSTON PARISH, LOUISIANA

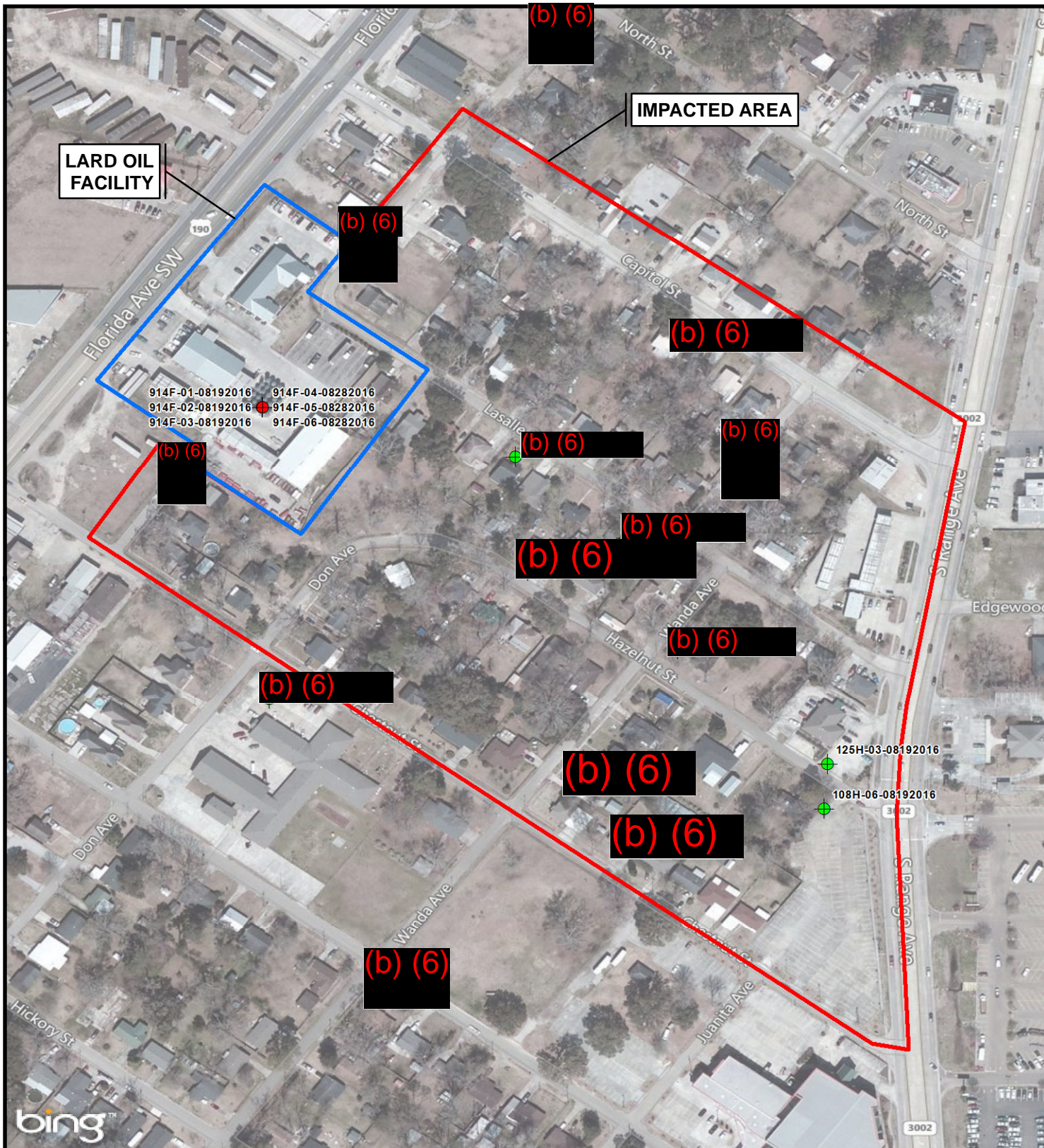
DATE	PROJECT NO	SCALE
DECEMBER 2016	20406.012.002.1037.01	AS SHOWN

SOURCE: BING MAPS AERIAL HYBRID  
TDD: 2/WESTON-042-16-020  
NRC: 1156749, 1156486

**ATTACHMENT D**

**SAMPLE LOCATION MAP**





## LEGEND

- FACILITY BOUNDARY
- IMPACTED AREA
- OFFSITE SAMPLE LOCATION
- SOURCE SAMPLE LOCATION



0 250 500

SCALE IN FEET

SOURCE: BING MAPS AERIAL HYBRID  
TDD: 2\WESTON-042-16-020  
NRC: 1156749, 1156486



US EPA REGION 6

**ATTACHMENT D**  
SAMPLE LOCATION MAP  
LARD OIL COMPANY OIL SPILL  
914 FLORIDA AVE SW  
DENHAM SPRINGS, LIVINGSTON PARISH, LOUISIANA

DATE	PROJECT NO	SCALE
DECEMBER 2016	20406.012.002.1037.01	AS SHOWN

**ATTACHMENT E**

**MATERIAL SAFETY DATA SHEETS**

## Section 1. Identification

**Product name** Castrol EDGE Professional 5W-20  
**SDS #** 467721  
**Code** 467721-US12

### Relevant identified uses of the substance or mixture and uses advised against

**Product use** Engine Oils.  
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

**Supplier** BP Lubricants USA Inc.  
1500 Valley Road  
Wayne, NJ 07470  
Telephone: (973) 633-2200

**EMERGENCY HEALTH INFORMATION:** 1 (800) 447-8735  
Outside the US: +1 703-527-3887 (CHEMTREC)

**EMERGENCY SPILL INFORMATION:** 1 (800) 424-9300 CHEMTREC (USA)

**OTHER PRODUCT INFORMATION** 1 (866) 4 BP - MSDS  
(866-427-6737 Toll Free - North America)  
email: bpcare@bp.com

## Section 2. Hazards identification

**OSHA/HCS status** This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** Not classified.

### GHS label elements

**Signal word** No signal word.

**Hazard statements** No known significant effects or critical hazards.

### Precautionary statements

**General** Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

**Prevention** Not applicable.

**Response** Not applicable.

**Storage** Not applicable.

**Disposal** Not applicable.

**Hazards not otherwise classified** Defatting to the skin.  
USED ENGINE OILS  
Used engine oil may contain hazardous components which have the potential to cause skin cancer.  
See Toxicological Information, section 11 of this Safety Data Sheet.



## Section 3. Composition/information on ingredients

Chemically modified base oil. Proprietary performance additives.

**Substance/mixture** Mixture

Ingredient name	CAS number	%
Base oil - highly refined	Varies - See Key to abbreviations	≥50 - ≤75
Base oil - highly refined	Varies - See Key to abbreviations	≥25 - ≤50
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	≤3
4-dodecylphenol	104-43-8	≤0.3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

**Occupational exposure limits, if available, are listed in Section 8.**

## Section 4. First aid measures

### Description of necessary first aid measures

<b>Eye contact</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
<b>Skin contact</b>	Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
<b>Inhalation</b>	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
<b>Ingestion</b>	Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training.

### Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

### Indication of immediate medical attention and special treatment needed, if necessary

<b>Notes to physician</b>	Treatment should in general be symptomatic and directed to relieving any effects.
<b>Specific treatments</b>	No specific treatment.

## Section 5. Fire-fighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.
<b>Unsuitable extinguishing media</b>	Do not use water jet.

**Specific hazards arising from the chemical** In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous combustion products** Combustion products may include the following:  
carbon dioxide  
carbon monoxide

**Special protective actions for fire-fighters** Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

<b>Product name</b> Castrol EDGE Professional 5W-20	<b>Product code</b> 467721-US12	<b>Page:</b> 2/9
<b>Version</b> 2.02 <b>Date of issue</b> 09/12/2016.	<b>Format</b> US (US)	<b>Language</b> ENGLISH (ENGLISH)

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.

#### For emergency responders

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

#### Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

#### Small spill

Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

#### Large spill

Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### Precautions for safe handling

#### Protective measures

Put on appropriate personal protective equipment (see Section 8).

#### Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

#### Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

#### Not suitable

Prolonged exposure to elevated temperature

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

<u>Ingredient name</u>	<u>Exposure limits</u>
Base oil - highly refined	<b>ACGIH TLV (United States).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction <b>OSHA PEL (United States).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 6/1993
Base oil - highly refined	<b>ACGIH TLV (United States).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction <b>OSHA PEL (United States).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 6/1993

**Product name** Castrol EDGE Professional 5W-20

**Product code** 467721-US12

**Page:** 3/9

**Version** 2.02 **Date of issue** 09/12/2016.

**Format** US  
(US)

**Language** ENGLISH  
(ENGLISH)

## Section 8. Exposure controls/personal protection

Distillates (petroleum), hydrotreated heavy paraffinic

### ACGIH TLV (United States).

TWA: 5 mg/m<sup>3</sup> 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction

### OSHA PEL (United States).

TWA: 5 mg/m<sup>3</sup> 8 hours. Issued/Revised: 6/1993

4-dodecylphenol

None.

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

### Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.

The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

### Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection

Safety glasses with side shields.

#### Skin protection

##### Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

##### Body protection

Use of protective clothing is good industrial practice.

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

##### Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.


## Section 8. Exposure controls/personal protection

### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.  
The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

## Section 9. Physical and chemical properties

### Appearance

Physical state	Liquid.
Color	Brown.
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point	Not available.
Boiling point	Not available.
Flash point	Closed cup: 220°C (428°F) [Pensky-Martens.]
Pour point	<-39 °C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable. Based on - Physical state
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Density	856 kg/m³ (0.856 g/cm³) at 15°C
Solubility	insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	 Kinematic: 49.06 mm²/s (49.06 cSt) at 40°C Kinematic: 8.73 mm²/s (8.73 cSt) at 100°C

## Section 10. Stability and reactivity

Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame).
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**Product name** Castrol EDGE Professional 5W-20

**Product code** 467721-US12

**Page:** 5/9

**Version** 2.02 **Date of issue** 09/12/2016.

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## Section 11. Toxicological information

### Information on toxicological effects

#### Aspiration hazard

Name	Result
Base oil - highly refined Distillates (petroleum), hydrotreated heavy paraffinic	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

### Information on the likely routes of exposure

Routes of entry anticipated: Dermal, Inhalation.

### Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Inhalation	Vapor inhalation under ambient conditions is not normally a problem due to low vapor pressure.
Ingestion	No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No specific data.
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Inhalation	No specific data.
Ingestion	No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

#### Long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

### Potential chronic health effects

General	USED ENGINE OILS Combustion products resulting from the operation of internal combustion engines contaminate engine oils during use. Used engine oil may contain hazardous components which have the potential to cause skin cancer. Frequent or prolonged contact with all types and makes of used engine oil must therefore be avoided and a high standard of personal hygiene maintained.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.



## Section 12. Ecological information

### Toxicity

No testing has been performed by the manufacturer.

### Persistence and degradability

Expected to be biodegradable.

### Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

### Mobility in soil

#### **Soil/water partition coefficient (K<sub>oc</sub>)**

Not available.

#### **Mobility**

Spillages may penetrate the soil causing ground water contamination.

### Other adverse effects

No known significant effects or critical hazards.

### Other ecological information

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

## Section 13. Disposal considerations

### Disposal methods

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	<b>DOT Classification</b>	<b>TDG Classification</b>	<b>IMDG</b>	<b>IATA</b>
<b>UN number</b>	Not regulated.	Not regulated.	Not regulated.	Not regulated.
<b>UN proper shipping name</b>	-	-	-	-
<b>Transport hazard class(es)</b>	-	-	-	-
<b>Packing group</b>	-	-	-	-
<b>Environmental hazards</b>	No.	No.	No.	No.
<b>Additional information</b>	-	-	-	-

### Special precautions for user

Not available.

### Transport in bulk according to Annex II of MARPOL and the IBC Code

Not available.

**Product name** Castrol EDGE Professional 5W-20

**Product code** 467721-US12

**Page:** 7/9

**Version** 2.02 **Date of issue** 09/12/2016.

**Format** US  
(US)

**Language** ENGLISH  
(ENGLISH)

## Section 15. Regulatory information

### U.S. Federal regulations

United States inventory  
(TSCA 8b)

All components are listed or exempted.

[SARA 302/304](#)

[Composition/information on ingredients](#)

No products were found.

[SARA 311/312](#)

Classification

Not applicable.

[SARA 313](#)

Form R - Reporting  
requirements

This product does not contain any hazardous ingredients at or above regulated thresholds.

Supplier notification

This product does not contain any hazardous ingredients at or above regulated thresholds.

### State regulations

Massachusetts

The following components are listed: OIL MIST, MINERAL; OIL MIST, MINERAL; OIL MIST, MINERAL

New Jersey

The following components are listed: MINERAL OIL (UNTREATED and MILDLY TREATED); MINERAL OIL (UNTREATED and MILDLY TREATED); MINERAL OIL (UNTREATED and MILDLY TREATED)

Pennsylvania

The following components are listed: MINERAL OIL MIST; MINERAL OIL MIST; MINERAL OIL MIST

California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause cancer.  
arsenic

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.  
lead; Cadmium (Non-pyrophoric)

### Other regulations

Australia inventory (AICS)

At least one component is not listed.

Canada inventory

At least one component is not listed.

China inventory (IECSC)

At least one component is not listed.

Japan inventory (ENCS)

At least one component is not listed.

Korea inventory (KECI)

All components are listed or exempted.

Philippines inventory  
(PICCS)

At least one component is not listed.

Taiwan Chemical  
Substances Inventory  
(TCSI)

All components are listed or exempted.

REACH Status

For the REACH status of this product please consult your company contact, as identified in Section 1.

## Section 16. Other information

### National Fire Protection Association (U.S.A.)



### History

Date of issue/Date of  
revision

09/12/2016.

Date of previous issue

08/17/2016.

Product name Castrol EDGE Professional 5W-20

Product code 467721-US12

Page: 8/9

Version 2.02 Date of issue 09/12/2016.

Format US  
(US)

Language ENGLISH  
(ENGLISH)

## Section 16. Other information

### Prepared by

### Key to abbreviations

Product Stewardship

ACGIH = American Conference of Industrial Hygienists

ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

CAS Number = Chemical Abstracts Service Registry Number

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

OEL = Occupational Exposure Limit

SDS = Safety Data Sheet

STEL = Short term exposure limit

TWA = Time weighted average

UN = United Nations

UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.

Varies = may contain one or more of the following 101316-69-2, 101316-70-5, 101316-71-6, 101316-72-7, 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64741-97-5, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-64-9, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1, 74869-22-0, 90669-74-2

Indicates information that has changed from previously issued version.

### Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

**Product name** Castrol EDGE Professional 5W-20

**Product code** 467721-US12

**Page:** 9/9

**Version** 2.02 **Date of issue** 09/12/2016.

**Format** US  
(US)

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(ENGLISH)

## Section 1. Identification

**Product name** Castrol EDGE 5W-30

**SDS #** 463740

**Code** 463740-US51

### Relevant identified uses of the substance or mixture and uses advised against

**Product use** Engine Oils.  
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

**Supplier** BP Lubricants USA Inc.  
1500 Valley Road  
Wayne, NJ 07470  
Telephone: (973) 633-2200

**EMERGENCY HEALTH INFORMATION:** 1 (800) 447-8735  
  
Outside the US: +1 703-527-3887 (CHEMTREC)

**EMERGENCY SPILL INFORMATION:** 1 (800) 424-9300 CHEMTREC (USA)

**OTHER PRODUCT INFORMATION** 1 (866) 4 BP - MSDS  
(866-427-6737 Toll Free - North America)  
email: bpcares@bp.com

## Section 2. Hazards identification

**OSHA/HCS status** This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** Not classified.

### GHS label elements

**Signal word** No signal word.

**Hazard statements** No known significant effects or critical hazards.

### Precautionary statements

**General** Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

**Prevention** Not applicable.

**Response** Not applicable.

**Storage** Not applicable.

**Disposal** Not applicable.

**Hazards not otherwise classified** Defatting to the skin.  
USED ENGINE OILS  
Used engine oil may contain hazardous components which have the potential to cause skin cancer.  
See Toxicological Information, section 11 of this Safety Data Sheet.

## Section 3. Composition/information on ingredients

Chemically modified base oil Proprietary performance additives.

**Substance/mixture** Mixture

Ingredient name	CAS number	%
Base oil - highly refined	Varies - See Key to abbreviations	≥25 - ≤50
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	≥25 - ≤50
Base oil - highly refined	Varies - See Key to abbreviations	≤3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

**Occupational exposure limits, if available, are listed in Section 8.**

## Section 4. First aid measures

### Description of necessary first aid measures

<b>Eye contact</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
<b>Skin contact</b>	Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
<b>Inhalation</b>	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
<b>Ingestion</b>	Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training.

### Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

### Indication of immediate medical attention and special treatment needed, if necessary

<b>Notes to physician</b>	Treatment should in general be symptomatic and directed to relieving any effects.
<b>Specific treatments</b>	No specific treatment.

## Section 5. Fire-fighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.
<b>Unsuitable extinguishing media</b>	Do not use water jet.

**Specific hazards arising from the chemical** In a fire or if heated, a pressure increase will occur and the container may burst.

<b>Hazardous combustion products</b>	Combustion products may include the following: carbon dioxide carbon monoxide
--------------------------------------	---

**Special protective actions for fire-fighters** Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

**Product name** Castrol EDGE 5W-30

**Product code** 463740-US51

**Page:** 2/9

**Version** 2.02 **Date of issue** 06/07/2016.

**Format** US  
(US)

**Language** ENGLISH  
(ENGLISH)

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.

#### For emergency responders

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

#### Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

#### Small spill

Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

#### Large spill

Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### Precautions for safe handling

#### Protective measures

Put on appropriate personal protective equipment (see Section 8).

#### Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

#### Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

#### Not suitable

Prolonged exposure to elevated temperature

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

<u>Ingredient name</u>	<u>Exposure limits</u>
Base oil - highly refined	<b>ACGIH TLV (United States).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction <b>OSHA PEL (United States).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 6/1993
Base oil - highly refined	<b>ACGIH TLV (United States).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction <b>OSHA PEL (United States).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Issued/Revised: 6/1993

**Product name** Castrol EDGE 5W-30

**Product code** 463740-US51

**Page:** 3/9

**Version** 2.02 **Date of issue** 06/07/2016.

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(US)

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## Section 8. Exposure controls/personal protection

Distillates (petroleum), hydrotreated heavy paraffinic

### ACGIH TLV (United States).

TWA: 5 mg/m<sup>3</sup> 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction

### OSHA PEL (United States).

TWA: 5 mg/m<sup>3</sup> 8 hours. Issued/Revised: 6/1993

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

### Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.

The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

### Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection

Safety glasses with side shields.

#### Skin protection

##### Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

##### Body protection

Use of protective clothing is good industrial practice.

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

##### Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

## Section 8. Exposure controls/personal protection

### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.  
The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

## Section 9. Physical and chemical properties

### Appearance

Physical state	Liquid.
Color	Brown.
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point	Not available.
Boiling point	Not available.
Flash point	Closed cup: 202°C (395.6°F) [Pensky-Martens.]
Pour point	-42 °C
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable. Based on - Physical state
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Density	851.3 kg/m³ (0.851 g/cm³) at 15°C
Solubility	insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Kinematic: 70 mm²/s (70 cSt) at 40°C Kinematic: 12 mm²/s (12 cSt) at 100°C

## Section 10. Stability and reactivity

Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame).
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Product name Castrol EDGE 5W-30

Product code 463740-US51

Page: 5/9

Version 2.02 Date of issue 06/07/2016.

Format US  
(US)

Language ENGLISH  
(ENGLISH)



## Section 11. Toxicological information

### Information on toxicological effects

#### Aspiration hazard

Name	Result
Distillates (petroleum), hydrotreated heavy paraffinic Base oil - highly refined	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

### Information on the likely routes of exposure

Routes of entry anticipated: Dermal, Inhalation.

### Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Inhalation	Vapor inhalation under ambient conditions is not normally a problem due to low vapor pressure.
Ingestion	No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No specific data.
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Inhalation	No specific data.
Ingestion	No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

#### Long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

### Potential chronic health effects

General	USED ENGINE OILS Combustion products resulting from the operation of internal combustion engines contaminate engine oils during use. Used engine oil may contain hazardous components which have the potential to cause skin cancer. Frequent or prolonged contact with all types and makes of used engine oil must therefore be avoided and a high standard of personal hygiene maintained.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

## Section 12. Ecological information

### Toxicity

No testing has been performed by the manufacturer.

### Persistence and degradability

Expected to be biodegradable.

### Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

### Mobility in soil

#### Soil/water partition coefficient (K<sub>oc</sub>)

Not available.

#### Mobility

Spillages may penetrate the soil causing ground water contamination.

### Other adverse effects

No known significant effects or critical hazards.

### Other ecological information

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

## Section 13. Disposal considerations

### Disposal methods

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

### Special precautions for user

Not available.

### Transport in bulk according to Annex II of MARPOL and the IBC Code

Not available.

**Product name** Castrol EDGE 5W-30

**Product code** 463740-US51

**Page:** 7/9

**Version** 2.02 **Date of issue** 06/07/2016.

**Format** US  
(US)

**Language** ENGLISH  
(ENGLISH)

## Section 15. Regulatory information

### U.S. Federal regulations

United States inventory  
(TSCA 8b)

All components are listed or exempted.

[SARA 302/304](#)

[Composition/information on ingredients](#)

No products were found.

[SARA 311/312](#)

Classification

Not applicable.

[SARA 313](#)

Form R - Reporting  
requirements

This product does not contain any hazardous ingredients at or above regulated thresholds.

Supplier notification

This product does not contain any hazardous ingredients at or above regulated thresholds.

### State regulations

Massachusetts

The following components are listed: OIL MIST, MINERAL; OIL MIST, MINERAL

New Jersey

The following components are listed: MINERAL OIL (UNTREATED and MILDLY TREATED); MINERAL OIL (UNTREATED and MILDLY TREATED)

Pennsylvania

The following components are listed: MINERAL OIL MIST; MINERAL OIL MIST

California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause cancer.  
arsenic; naphthalene; ethylbenzene

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.  
lead; Cadmium (Non-pyrophoric)

### Other regulations

Australia inventory (AICS)

All components are listed or exempted.

Canada inventory

All components are listed or exempted.

China inventory (IECSC)

At least one component is not listed.

Japan inventory (ENCS)

All components are listed or exempted.

Korea inventory (KECI)

All components are listed or exempted.

Philippines inventory  
(PICCS)

All components are listed or exempted.

Taiwan Chemical  
Substances Inventory  
(TCSI)

All components are listed or exempted.

REACH Status

For the REACH status of this product please consult your company contact, as identified in Section 1.

## Section 16. Other information

### National Fire Protection Association (U.S.A.)



### History

Date of issue/Date of  
revision

06/07/2016.

Date of previous issue

01/06/2016.

Prepared by

Product Stewardship

Product name Castrol EDGE 5W-30

Product code 463740-US51

Page: 8/9

Version 2.02 Date of issue 06/07/2016.

Format US  
(US)

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(ENGLISH)

## Section 16. Other information

### Key to abbreviations

ACGIH = American Conference of Industrial Hygienists  
ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
CAS Number = Chemical Abstracts Service Registry Number  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
LogPow = logarithm of the octanol/water partition coefficient  
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
OEL = Occupational Exposure Limit  
SDS = Safety Data Sheet  
STEL = Short term exposure limit  
TWA = Time weighted average  
UN = United Nations  
UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.  
Varies = may contain one or more of the following 101316-69-2, 101316-70-5, 101316-71-6, 101316-72-7, 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64741-97-5, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-64-9, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1, 74869-22-0, 90669-74-2

▣ Indicates information that has changed from previously issued version.

### Notice to reader

*All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.*

*The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.*

*It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.*

**Product name** Castrol EDGE 5W-30

**Product code** 463740-US51

**Page:** 9/9

**Version** 2.02 **Date of issue** 06/07/2016.

**Format** US  
(US)

**Language** ENGLISH  
(ENGLISH)



480780-00 MOBIL DRIVE CLEAN BLEND 5W-30  
MATERIAL SAFETY DATA BULLETIN

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MOBIL DRIVE CLEAN BLEND 5W-30  
SUPPLIER: EXXONMOBIL OIL CORPORATION  
3225 GALLOWS RD.  
FAIRFAX, VA 22037

24 - Hour Health and Safety Emergency (call collect): 609-737-4411

24 - Hour Transportation Emergency:  
CHEMTREC: 800-424-9300 202-483-7616  
LUBES AND FUELS: 281-834-3296

Product and Technical Information:

Lubricants and Specialties: 800-662-4525 800-443-9966

Fuels Products: 800-947-9147

MSDS Fax on Demand: 713-613-3661

MSDS Internet Website: <http://www.exxon.com>, <http://www.mobil.com>

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: PET./SYNTH. HYDROCARBONS AND ADDITIVES

GLOBALLY REPORTABLE MSDS INGREDIENTS:

Substance Name	Approx. Wt%
PHOSPHORODITHIOIC ACID, O,O-DI-C1-14-ALKYL ESTERS, ZINC SALT (2:1) ZDDP (68649-42-3)	1-5

OTHER INGREDIENTS:

Substance Name	Approx. Wt%
ALKYLATED PHENOL	1-5

See Section 8 for exposure limits (if applicable).

---

### 3. HAZARDS IDENTIFICATION

---

Under normal conditions of use, this product is not considered hazardous according to regulatory guidelines (See section 15).

EMERGENCY OVERVIEW: Amber Liquid. DOT ERG No. : NA

POTENTIAL HEALTH EFFECTS: Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation.

For further health effects/toxicological data, see Section 11.

---

### 4. FIRST AID MEASURES

---

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.

SKIN CONTACT: Wash contact areas with soap and water. Remove and clean oil soaked clothing daily and wash affected area. (See Section 16 - Injection Injury)

INHALATION: Not expected to be a problem. However, if respiratory irritation, dizziness, nausea, or unconsciousness occurs due to excessive vapor or mist exposure, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or mouth-to-mouth resuscitation.

INGESTION: Not expected to be a problem. Seek medical attention if discomfort occurs. Do not induce vomiting.

---

### 5. FIRE-FIGHTING MEASURES

---

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

COMBUSTION PRODUCTS: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

Flash Point C(F): > 200(392) (ASTM D-92).

Flammable Limits (approx.% vol.in air) - LEL: 0.9%, UEL: 7.0%

NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

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### 6. ACCIDENTAL RELEASE MEASURES

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NOTIFICATION PROCEDURES: Report spills/releases as required to appropriate authorities. U.S. Coast Guard and EPA regulations require immediate reporting of spills/releases that could reach any waterway including intermittent dry creeks. Report spill/release to Coast Guard National Response Center toll free

number (800)424-8802. In case of accident or road spill notify  
CHEMTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:

LAND SPILL: Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping or contain spilled material with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.

WATER SPILL: Confine the spill immediately with booms. Warn other ships in the vicinity. Notify port and other relevant authorities. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.

ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers, water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.

PERSONAL PRECAUTIONS: See Section 8

---

7. HANDLING AND STORAGE

---

HANDLING: No special precautions are necessary beyond normal good hygiene practices. See Section 8 for additional personal protection advice when handling this product.

STORAGE: Keep containers closed when not in use. Do not store in open or unlabelled containers. Store away from strong oxidizing agents and combustible materials. Do not store near heat, sparks, flame or strong oxidants.

SPECIAL PRECAUTIONS: Prevent small spills and leakages to avoid slip hazard.

EMPTY CONTAINER WARNING: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

---

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

---

OCCUPATIONAL EXPOSURE LIMITS:

When mists/aerosols can occur, the following are recommended: 5 mg/m<sup>3</sup> (as oil mist)- ACGIH Threshold Limit Value (TLV), 10 mg/m<sup>3</sup> (as oil mist) - ACGIH Short Term Exposure Limit (STEL), 5 mg/m<sup>3</sup> (as oil mist) - OSHA Permissible Exposure Limit (PEL)

VENTILATION: If mists are generated, use adequate ventilation, local exhaust or enclosures to control below exposure limits.

RESPIRATORY PROTECTION: If mists are generated, and/or when ventilation is not adequate, wear approved respirator.

EYE PROTECTION: If eye contact is likely, safety glasses with side shields or chemical type goggles should be worn.  
SKIN PROTECTION: Not normally required. When splashing or liquid contact can occur frequently, wear oil resistant gloves and/or other protective clothing. Good personal hygiene practices should always be followed.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE: Liquid  
COLOR: Amber  
ODOR: Mild  
ODOR THRESHOLD-ppm: NE  
pH: NA  
BOILING POINT C(F): > 316(600)  
MELTING POINT C(F): NA  
FLASH POINT C(F): > 200(392) (ASTM D-92)  
FLAMMABILITY (solids): NE  
AUTO FLAMMABILITY C(F): NA  
EXPLOSIVE PROPERTIES: NA  
OXIDIZING PROPERTIES: NA  
VAPOR PRESSURE-mmHg 20 C: < 0.1  
VAPOR DENSITY: > 2.0  
EVAPORATION RATE: NE  
RELATIVE DENSITY, 15/4 C: 0.86  
SOLUBILITY IN WATER: Negligible  
PARTITION COEFFICIENT: > 3.5  
VISCOSITY AT 40 C, cSt: 63.0  
VISCOSITY AT 100 C, cSt: 10.5  
POUR POINT C(F): -42(-44)  
FREEZING POINT C(F): NE  
VOLATILE ORGANIC COMPOUND: NE  
DMSO EXTRACT, IP-346 (WT.%): <3, for mineral oil only  
NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

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## 10. STABILITY AND REACTIVITY

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STABILITY (THERMAL, LIGHT, ETC.): Stable.  
CONDITIONS TO AVOID: Extreme heat and high energy sources of ignition.  
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers.  
HAZARDOUS DECOMPOSITION PRODUCTS: Product does not decompose at ambient temperatures.  
HAZARDOUS POLYMERIZATION: Will not occur.

---

## 11. TOXICOLOGICAL DATA

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### ---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the



components.

DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.

INHALATION TOXICITY (RATS): Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.

EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS): Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.

OTHER ACUTE TOXICITY DATA: Although an acute inhalation study was not performed with this product, a variety of mineral and synthetic oils, such as those in this product, have been tested. These samples had virtually no effect other than a nonspecific inflammatory response in the lung to the aerosolized mineral oil. The presence of additives in other tested formulations (in approximately the same amounts as in the present formulation) did not alter the observed effects.

#### ---SUBCHRONIC TOXICOLOGY (SUMMARY)---

No significant adverse effects were found in studies using repeated dermal applications of similar formulations to the skin of laboratory animals for 13 weeks at doses significantly higher than those expected during normal industrial exposure. The animals were evaluated extensively for effects of exposure (hematology, serum chemistry, urinalysis, organ weights, microscopic examination of tissues etc.).

#### ---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

No teratogenic effects would be expected from dermal exposure, based on laboratory developmental toxicity studies of major components in this formulation and/or materials of similar composition.

#### ---CHRONIC TOXICOLOGY (SUMMARY)---

Repeated and/or prolonged exposure may cause irritation to the skin, eyes or respiratory tract. Overexposure to oil mist may result in oil droplet deposition and/or granuloma formation. For mineral base oils: Base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using various screening methods such as Modified Ames Test, IP-346, and/or other analytical methods. For synthetic base oils: The base oils in this product have been tested in the Ames assay and other tests of mutagenicity with negative results. These base oils are not expected to be carcinogenic with chronic dermal exposures.

#### ---SENSITIZATION (SUMMARY)---

Not expected to be sensitizing based on tests of this product, components, or similar products.

#### ---OTHER TOXICOLOGY DATA---

Used gasoline engine oils have shown evidence of skin carcinogenic

activity in laboratory tests when no effort was made to wash the oil off between applications. Used oil from diesel engines did not produce this effect.

---

## 12. ECOLOGICAL INFORMATION

---

### ENVIRONMENTAL FATE AND EFFECTS:

In the absence of specific environmental data for this product, this assessment is based on information for representative products.

ECOTOXICITY: Available ectotoxicity data (LL50 >1000 mg/L) indicates that adverse effects to aquatic organisms are not expected from this product.

MOBILITY: When released into the environment, adsorption to sediment and soil will be the predominant behavior.

PERSISTENCE AND DEGRADABILITY: This product is expected to be inherently biodegradable.

BIOACCUMULATIVE POTENTIAL: Bioaccumulation is unlikely due to the very low water solubility of this product, therefore bioavailability to aquatic organisms is minimal.

---

## 13. DISPOSAL CONSIDERATIONS

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WASTE DISPOSAL: Product is suitable for burning in an enclosed, controlled burner for fuel value. Such burning may be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

RCRA INFORMATION: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity. The unused product is not formulated with substances covered by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

---

## 14. TRANSPORT INFORMATION

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USA DOT: NOT REGULATED BY USA DOT.

RID/ADR: NOT REGULATED BY RID/ADR.

IMO: NOT REGULATED BY IMO.

IATA: NOT REGULATED BY IATA.

STATIC ACCUMULATOR (50 picosiemens or less): YES

-----  
15. REGULATORY INFORMATION  
-----

US OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this product is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

EU Labeling: Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives. EU labeling not required.

Governmental Inventory Status: All components comply with TSCA, EINECS/ELINCS, AICS, METI, and DSL.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III: This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

This product contains the following SARA (313) Toxic Release Chemicals:

CHEMICAL NAME	CAS NUMBER	CONC.
-----	-----	-----
ZINC DITHIOPHOSPHATE	68649-42-3	<1%

The following product ingredients are cited on the lists below:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS *
-----	-----	-----
DIPHENYLAMINE	122-39-4	1
ZINC (ELEMENTAL ANALYSIS) (0.11%)	7440-66-6	22
ZINC DITHIOPHOSPHATE (<1.04%)	68649-42-3	18, 20, 21, 22, 24, 25

--- REGULATORY LISTS SEARCHED ---

1=ACGIH ALL	6=IARC 1	11=TSCA 4	16=CA P65 CARC	21=LA RTK
2=ACGIH A1	7=IARC 2A	12=TSCA 5a2	17=CA P65 REPRO	22=MI 293
3=ACGIH A2	8=IARC 2B	13=TSCA 5e	18=CA RTK	23=MN RTK
4=NTP CARC	9=OSHA CARC	14=TSCA 6	19=FL RTK	24=NJ RTK
5=NTP SUS	10=OSHA Z	15=TSCA 12b	20=IL RTK	25=PA RTK
				26=RI RTK

\* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear

on a TSCA 4 or TSCA 12b list.  
Code key:CARC=Carcinogen; SUS=Suspected Carcinogen; REPRO=Reproductive

---

## 16. OTHER INFORMATION

---

USE: AUTOMOTIVE ENGINE OIL

NOTE: PRODUCTS OF EXXON MOBIL CORPORATION AND ITS AFFILIATED COMPANIES  
ARE NOT FORMULATED TO CONTAIN PCBS.

Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be considered:

INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

### INDUSTRIAL LABEL

Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. Always observe good hygiene measures. First Aid: Wash skin with soap and water. Flush eyes with water. If overcome by fumes or vapor, remove to fresh air. If ingested do not induce vomiting. If symptoms persist seek medical assistance. Read and understand the MSDS before using this product.

\*\*\*\*\*  
For Internal Use Only: MHC: 1\* 1\* 1\* 1\* 1\*, MPPEC: A, TRN: 480780-00,  
CMCS97: 97M332, REQ: US - MARKETING, SAFE USE: L  
EHS Approval Date: 22JAN2002  
\*\*\*\*\*

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Prepared by: ExxonMobil Oil Corporation  
Environmental Health and Safety Department, Clinton, USA

Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 1 of 10

## SAFETY DATA SHEET

### SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

#### PRODUCT

**Product Name:** ACDELCO DEXOS1 0W-20  
**Product Description:** Base Oil and Additives  
**Product Code:** 20201020B530, 485847-00, 97CC97  
**Intended Use:** Engine oil

#### COMPANY IDENTIFICATION

**Supplier:** EXXON MOBIL CORPORATION  
3225 GALLOWS RD.  
FAIRFAX, VA. 22037 USA  
**24 Hour Health Emergency** 609-737-4411  
**Transportation Emergency Phone** 800-424-9300  
**ExxonMobil Transportation No.** 281-834-3296  
**Product Technical Information** 800-662-4525, 800-947-9147  
**MSDS Internet Address** <http://www.exxon.com>, <http://www.mobil.com>

### SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

**Other hazard information:**

**HAZARD NOT OTHERWISE CLASSIFIED (HNOC):** None as defined under 29 CFR 1900.1200.

#### PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

#### HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

#### ENVIRONMENTAL HAZARDS

No significant hazards.

<b>NFPA Hazard ID:</b>	Health: 0	Flammability: 1	Reactivity: 0
<b>HMIS Hazard ID:</b>	Health: 0	Flammability: 1	Reactivity: 0

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary

Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 2 of 10

from person to person.

### SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

#### Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP)	68649-42-3	1 - < 5%	H315, H319(2A)
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	80 - < 90%	H304

\* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

### SECTION 4 FIRST AID MEASURES

#### INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

#### SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

#### EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

#### INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

### SECTION 5 FIRE FIGHTING MEASURES

#### EXTINGUISHING MEDIA

**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Inappropriate Extinguishing Media:** Straight Streams of Water

Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 3 of 10

## FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Hazardous Combustion Products:** Smoke, Fume, Aldehydes, Sulfur oxides, Incomplete combustion products, Oxides of carbon

## FLAMMABILITY PROPERTIES

**Flash Point [Method]:** 194°C (381°F) [ASTM D-92]

**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0

**Autoignition Temperature:** N/D

## SECTION 6

## ACCIDENTAL RELEASE MEASURES

## NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

## PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

## SPILL MANAGEMENT

**Land Spill:** Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

**Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.



Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 4 of 10

## ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

## SECTION 7

## HANDLING AND STORAGE

### HANDLING

Avoid contact with used product. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

**Static Accumulator:** This material is a static accumulator.

### STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers.

## SECTION 8

## EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE LIMIT VALUES

**Exposure limits/standards (Note: Exposure limits are not additive)**

Substance Name	Form	Limit / Standard			NOTE	Source
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	Inhalable fraction.	TWA	5 mg/m <sup>3</sup>		N/A	ACGIH
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	Mist.	TWA	5 mg/m <sup>3</sup>		N/A	ACGIH

**Exposure limits/standards for materials that can be formed when handling this product:** When mists/aerosols can occur the following are recommended: 5 mg/m<sup>3</sup> - ACGIH TLV (inhalable fraction), 5 mg/m<sup>3</sup> - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

### ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

### PERSONAL PROTECTION

Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 5 of 10

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

## ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

## SECTION 9

## PHYSICAL AND CHEMICAL PROPERTIES

**Note:** Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

### GENERAL INFORMATION

**Physical State:** Liquid

**Color:** Brown

**Odor:** Characteristic

**Odor Threshold:** N/D

### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

**Relative Density (at 15 °C):** 0.848

Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 6 of 10

**Flammability (Solid, Gas):** N/A  
**Flash Point [Method]:** 194°C (381°F) [ASTM D-92]  
**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0  
**Autoignition Temperature:** N/D  
**Boiling Point / Range:** N/D  
**Decomposition Temperature:** N/D  
**Vapor Density (Air = 1):** > 2 at 101 kPa  
**Vapor Pressure:** < 0.013 kPa (0.1 mm Hg) at 20 °C  
**Evaporation Rate (n-butyl acetate = 1):** N/D  
**pH:** N/A  
**Log Pow (n-Octanol/Water Partition Coefficient):** > 3.5  
**Solubility in Water:** Negligible  
**Viscosity:** 43.37 cSt (43.37 mm<sup>2</sup>/sec) at 40 °C  
**Oxidizing Properties:** See Hazards Identification Section.

#### OTHER INFORMATION

**Freezing Point:** N/D  
**Melting Point:** N/A  
**Pour Point:** -36°C (-33°F)  
**DMSO Extract (mineral oil only), IP-346:** < 3 %wt

### SECTION 10 STABILITY AND REACTIVITY

**REACTIVITY:** See sub-sections below.

**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

**MATERIALS TO AVOID:** Strong oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**POSSIBILITY OF HAZARDOUS REACTIONS:** Hazardous polymerization will not occur.

### SECTION 11 TOXICOLOGICAL INFORMATION

#### INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
<b>Inhalation</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
<b>Ingestion</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
<b>Skin</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.

Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 7 of 10

<b>Eye</b>	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
<b>Sensitization</b>	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
<b>Aspiration:</b> Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
<b>Germ Cell Mutagenicity:</b> No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
<b>Carcinogenicity:</b> No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
<b>Reproductive Toxicity:</b> No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
<b>Lactation:</b> No end point data for material.	Not expected to cause harm to breast-fed children.
<b>Specific Target Organ Toxicity (STOT)</b>	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

## TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP)	Dermal Lethality: LD50 > 2000 mg/kg (Rabbit); Oral Lethality: LD50 > 2000 mg/kg (Rat)

## OTHER INFORMATION

### For the product itself:

Diesel engine oils: Not carcinogenic in animals tests. Used and unused diesel engine oils did not produce any carcinogenic effects in chronic mouse skin painting studies.

Oils that are used in gasoline engines may become hazardous and display the following properties: Carcinogenic in animal tests. Caused mutations in vitro. Possible allergen and photoallergen. Contains polycyclic aromatic compounds (PAC) from combustion products of gasoline and/or thermal degradation products.

### Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 8 of 10

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

## SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

### ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

### MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land.  
Expected to partition to sediment and wastewater solids.

### PERSISTENCE AND DEGRADABILITY

#### Biodegradation:

Base oil component -- Expected to be inherently biodegradable

### BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

## SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

### DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

### REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

**Empty Container Warning** Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE

Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 9 of 10

SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

<b>SECTION 14</b>	<b>TRANSPORT INFORMATION</b>
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**LAND (DOT):** Not Regulated for Land Transport

**LAND (TDG):** Not Regulated for Land Transport

**SEA (IMDG):** Not Regulated for Sea Transport according to IMDG-Code

**Marine Pollutant:** No

**AIR (IATA):** Not Regulated for Air Transport

<b>SECTION 15</b>	<b>REGULATORY INFORMATION</b>
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**OSHA HAZARD COMMUNICATION STANDARD:** This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

**Complies with the following national/regional chemical inventory requirements:** AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

**EPCRA SECTION 302:** This material contains no extremely hazardous substances.

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** None.

**SARA (313) TOXIC RELEASE INVENTORY:**

Chemical Name	CAS Number	Typical Value
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP)	68649-42-3	1 - < 5%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP)	68649-42-3	13, 15, 17, 19



Product Name: ACDELCO DEXOS1 0W-20

Revision Date: 12 Jun 2014

Page 10 of 10

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--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

**KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):**

H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1

H315: Causes skin irritation; Skin Corr/Irritation, Cat 2

H319(2A): Causes serious eye irritation; Serious Eye Damage/Irr, Cat 2A

**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**

Updates made in accordance with implementation of GHS requirements.

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Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0

PPEC: A

DGN: 7124097XUS (1021058)

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Product Name: MOBILTRANS HD 30  
Revision Date: 16 Mar 2015  
Page 1 of 10

## SAFETY DATA SHEET

### SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

#### PRODUCT

**Product Name:** MOBILTRANS HD 30  
**Product Description:** Base Oil and Additives  
**Product Code:** 201520506030, 521138-00, 973916  
**Intended Use:** Manual transmission fluid

#### COMPANY IDENTIFICATION

**Supplier:** EXXON MOBIL CORPORATION  
22777 Springwoods Village Parkway  
Spring, TX. 77389 USA  
**24 Hour Health Emergency** 609-737-4411  
**Transportation Emergency Phone** 800-424-9300 or 703-527-3887 CHEMTREC  
**Product Technical Information** 800-662-4525  
**MSDS Internet Address** <http://www.exxon.com>, <http://www.mobil.com>

### SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

#### Other hazard information:

**HAZARD NOT OTHERWISE CLASSIFIED (HNOC):** None as defined under 29 CFR 1910.1200.

#### PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

#### HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

#### ENVIRONMENTAL HAZARDS

No significant hazards.

<b>NFPA Hazard ID:</b>	Health: 0	Flammability: 1	Reactivity: 0
<b>HMIS Hazard ID:</b>	Health: 0	Flammability: 1	Reactivity: 0

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

Product Name: MOBILTRANS HD 30

Revision Date: 16 Mar 2015

Page 2 of 10

### SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

#### Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
CALCIUM SULFONATE		0.1 - < 1%	H317
TETRAPROPENYL PHENOL	121158-58-5	0.1 - < 1%	H315, H361(F), H400(M factor 1), H410(M factor 1)
ZINC ARYLDITHIOPHOSPHATE	98073-07-5	1 - < 5%	H320(2B), H402, H412

\* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

### SECTION 4 FIRST AID MEASURES

#### INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

#### SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

#### EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

#### INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

### SECTION 5 FIRE FIGHTING MEASURES

#### EXTINGUISHING MEDIA

**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Inappropriate Extinguishing Media:** Straight Streams of Water

Product Name: MOBILTRANS HD 30

Revision Date: 16 Mar 2015

Page 3 of 10

## FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Hazardous Combustion Products:** Incomplete combustion products, Aldehydes, Oxides of carbon, Smoke, Fume, Sulfur oxides

## FLAMMABILITY PROPERTIES

**Flash Point [Method]:** >218°C (424°F) [ASTM D-92]

**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0

**Autoignition Temperature:** N/D

## SECTION 6

## ACCIDENTAL RELEASE MEASURES

## NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

## PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

## SPILL MANAGEMENT

**Land Spill:** Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

**Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

Product Name: MOBILTRANS HD 30

Revision Date: 16 Mar 2015

Page 4 of 10

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## ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

## SECTION 7

## HANDLING AND STORAGE

### HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

**Static Accumulator:** This material is a static accumulator.

### STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

## SECTION 8

## EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure limits/standards for materials that can be formed when handling this product:** When mists/aerosols can occur the following are recommended: 5 mg/m<sup>3</sup> - ACGIH TLV (inhalable fraction), 5 mg/m<sup>3</sup> - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

### ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

### PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of

Product Name: MOBILTRANS HD 30

Revision Date: 16 Mar 2015

Page 5 of 10

respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

## ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

## SECTION 9

## PHYSICAL AND CHEMICAL PROPERTIES

**Note:** Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

### GENERAL INFORMATION

**Physical State:** Liquid

**Color:** Amber

**Odor:** Characteristic

**Odor Threshold:** N/D

### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

**Relative Density (at 15 °C):** 0.893

**Flammability (Solid, Gas):** N/A

**Flash Point [Method]:** >218°C (424°F) [ASTM D-92]

**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0

**Autoignition Temperature:** N/D

**Boiling Point / Range:** > 316°C (600°F)

**Decomposition Temperature:** N/D

**Vapor Density (Air = 1):** > 2 at 101 kPa



Product Name: MOBILTRANS HD 30

Revision Date: 16 Mar 2015

Page 6 of 10

**Vapor Pressure:** < 0.013 kPa (0.1 mm Hg) at 20 °C  
**Evaporation Rate (n-butyl acetate = 1):** N/D  
**pH:** N/A  
**Log Pow (n-Octanol/Water Partition Coefficient):** > 3.5  
**Solubility in Water:** Negligible  
**Viscosity:** 100 cSt (100 mm<sup>2</sup>/sec) at 40 °C | 11.2 cSt (11.2 mm<sup>2</sup>/sec) at 100°C  
**Oxidizing Properties:** See Hazards Identification Section.

#### OTHER INFORMATION

**Freezing Point:** N/D  
**Melting Point:** N/A  
**Pour Point:** -18°C (0°F)  
**DMSO Extract (mineral oil only), IP-346:** < 3 %wt

### SECTION 10 STABILITY AND REACTIVITY

**REACTIVITY:** See sub-sections below.

**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

**MATERIALS TO AVOID:** Strong oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**POSSIBILITY OF HAZARDOUS REACTIONS:** Hazardous polymerization will not occur.

### SECTION 11 TOXICOLOGICAL INFORMATION

#### INFORMATION ON TOXICOLOGICAL EFFECTS

<b>Hazard Class</b>	<b>Conclusion / Remarks</b>
<b>Inhalation</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
<b>Ingestion</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
<b>Skin</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
<b>Eye</b>	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
<b>Sensitization</b>	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for	Not expected to be a skin sensitizer. Based on assessment of the

Product Name: MOBILTRANS HD 30

Revision Date: 16 Mar 2015

Page 7 of 10

material.	components.
<b>Aspiration:</b> Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
<b>Germ Cell Mutagenicity:</b> No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
<b>Carcinogenicity:</b> No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
<b>Reproductive Toxicity:</b> No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
<b>Lactation:</b> No end point data for material.	Not expected to cause harm to breast-fed children.
<b>Specific Target Organ Toxicity (STOT)</b>	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

## OTHER INFORMATION

### For the product itself:

Component concentrations in this formulation would not be expected to cause skin sensitization, based on tests of the components or similar formulations.

#### Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

Tetrapropenyl phenol (TPP). TPP was tested in a rat oral gavage one-generation reproductive toxicity study and a rat dietary two-generation reproductive toxicity study. Results from the one-generation study included reduced ovary weights and changes in male reproductive accessory organs. Results from the two-generation study included prolonged estrous cyclicity, reduced ovary weights, accelerated sexual maturation, decreased mean live litter size, decreased fertility rates, hypospermia, and reduced weights of male reproductive accessory organs. A Specific Concentration Limit (SCL) for reproductive effects of 1.5 wt% TPP was derived by the supplier based on the NOAEL (15 mg/kg/day) from the rat dietary two-generation study and was confirmed in supporting studies with other substances containing TPP as an impurity.

The following ingredients are cited on the lists below: None.

#### --REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

## SECTION 12

## ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

### ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

Product Name: MOBILTRANS HD 30

Revision Date: 16 Mar 2015

Page 8 of 10

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## MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

## PERSISTENCE AND DEGRADABILITY

### Biodegradation:

Base oil component -- Expected to be inherently biodegradable

## BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

NOTE: One or more components of this material contain an impurity (branched alkylphenol) that is highly toxic to aquatic organisms. The components containing the impurity were tested by the supplier and found to be no more than minimally toxic to aquatic organisms.

<b>SECTION 13</b>
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<b>DISPOSAL CONSIDERATIONS</b>
--------------------------------

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

## DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

## REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

**Empty Container Warning** Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

<b>SECTION 14</b>
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<b>TRANSPORT INFORMATION</b>
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**LAND (DOT):** Not Regulated for Land Transport

Product Name: MOBILTRANS HD 30

Revision Date: 16 Mar 2015

Page 9 of 10

**LAND (TDG):** Not Regulated for Land Transport

**SEA (IMDG):** Not Regulated for Sea Transport according to IMDG-Code

**Marine Pollutant:** No

**AIR (IATA):** Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
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**OSHA HAZARD COMMUNICATION STANDARD:** This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

**Listed or exempt from listing/notification on the following chemical inventories:** AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

**EPCRA SECTION 302:** This material contains no extremely hazardous substances.

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** None.

**SARA (313) TOXIC RELEASE INVENTORY:** This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ZINC ARYLDITHIOPHOSPHATE	98073-07-5	13, 15, 17, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16	OTHER INFORMATION
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Product Name: MOBILTRANS HD 30

Revision Date: 16 Mar 2015

Page 10 of 10

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N/D = Not determined, N/A = Not applicable

**KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):**

H315: Causes skin irritation; Skin Corr/Irritation, Cat 2

H317: May cause allergic skin reaction; Skin Sensitization, Cat 1

H320(2B): Causes eye irritation; Serious Eye Damage/Irr, Cat 2B

H361(F): Suspected of damaging fertility; Repro Tox, Cat 2 (Fertility)

H400: Very toxic to aquatic life; Acute Env Tox, Cat 1

H402: Harmful to aquatic life; Acute Env Tox, Cat 3

H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

H412: Harmful to aquatic life with long lasting effects; Chronic Env Tox, Cat 3

**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**

Updates made in accordance with implementation of GHS requirements.

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MHC: 0B, 0B, 0, 0, 0, 0

PPEC: A

DGN: 2005851XUS (548859)

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Product Name: MOBIL DTE FM 32  
Revision Date: 21Feb2005  
Page 1 of 8

## MATERIAL SAFETY DATA SHEET

### SECTION 1

### PRODUCT AND COMPANY IDENTIFICATION

#### PRODUCT

**Product Name:** MOBIL DTE FM 32  
**Product Description:** Base Oil and Additives  
**Product Code:** 600353-00, 971191  
**Intended Use:** Hydraulic fluid

#### COMPANY IDENTIFICATION

**Supplier:** EXXON MOBIL CORPORATION  
3225 GALLOWS RD.  
FAIRFAX, VA. 22037 USA

**24 Hour Health Emergency** 609-737-4411  
**Transportation Emergency Phone** 800-424-9300  
**ExxonMobil Transportation No.** 281-834-3296  
**MSDS Requests** 713-613-3661  
**Product Technical Information** 800-662-4525, 800-947-9147  
**MSDS Internet Address** <http://www.exxon.com>, <http://www.mobil.com>

### SECTION 2

### COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

### SECTION 3

### HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

#### POTENTIAL HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

<b>NFPA Hazard ID:</b>	Health: 0	Flammability: 1	Reactivity: 0
<b>HMIS Hazard ID:</b>	Health: 0	Flammability: 1	Reactivity: 0

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

### SECTION 4

### FIRST AID MEASURES

#### INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use



Product Name: MOBIL DTE FM 32

Revision Date: 21Feb2005

Page 2 of 8

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mouth-to-mouth resuscitation.

#### SKIN CONTACT

If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury. Wash contact areas with soap and water.

#### EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

#### INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

### SECTION 5

#### FIRE FIGHTING MEASURES

##### EXTINGUISHING MEDIA

**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Inappropriate Extinguishing Media:** Straight Streams of Water

##### FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Unusual Fire Hazards:** Pressurized mists may form a flammable mixture.

**Hazardous Combustion Products:** Incomplete combustion products, Oxides of carbon, Smoke, Fume, Aldehydes, Sulfur oxides

##### FLAMMABILITY PROPERTIES

**Flash Point [Method]:** >174°C (345°F) [ASTM D-92]

**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0

**Autoignition Temperature:** N/D

### SECTION 6

#### ACCIDENTAL RELEASE MEASURES

##### NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. U.S. regulations require reporting releases of this material to the environment which exceed the reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

Product Name: MOBIL DTE FM 32

Revision Date: 21Feb2005

Page 3 of 8

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## SPILL MANAGEMENT

**Land Spill:** Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

**Water Spill:** Confine the spill immediately with booms. Stop leak if you can do it without risk. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

## ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7	HANDLING AND STORAGE
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### HANDLING

Prevent small spills and leakage to avoid slip hazard.

**Static Accumulator:** This material is a static accumulator.

### STORAGE

Do not store in open or unlabelled containers.

SECTION 8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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**Exposure limits/standards for materials that can be formed when handling this product:** When mists / aerosols can occur, the following are recommended: 5 mg/m<sup>3</sup> - ACGIH TLV, 10 mg/m<sup>3</sup> - ACGIH STEL, 5 mg/m<sup>3</sup> - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

### ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

### PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a

Product Name: MOBIL DTE FM 32

Revision Date: 21Feb2005

Page 4 of 8

level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Work conditions can greatly effect glove durability; inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

## ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

## SECTION 9

## PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

### GENERAL INFORMATION

**Physical State:** Liquid

**Color:** Pale Yellow

**Odor:** Characteristic

**Odor Threshold:** N/D

### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

**Relative Density (at 15 °C):** 0.896

**Flash Point [Method]:** >174°C (345°F) [ASTM D-92]

**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0

**Autoignition Temperature:** N/D

**Boiling Point / Range:** > 316°C (601°F)

**Vapor Density (Air = 1):** > 2 at 101 kPa

**Vapor Pressure:** < 0.013 kPa (0.1 mm Hg) at 20°C

**Evaporation Rate (n-butyl acetate = 1):** N/D

**pH:** N/A

**Log Pow (n-Octanol/Water Partition Coefficient):** > 3.5

Product Name: MOBIL DTE FM 32

Revision Date: 21Feb2005

Page 5 of 8

**Solubility in Water:** Negligible

**Viscosity:** 31.9 cSt (31.9 mm<sup>2</sup>/sec ) at 40 °C | 5 cSt (5 mm<sup>2</sup>/sec) at 100°C

**Oxidizing Properties:** See Sections 3, 15, 16.

#### OTHER INFORMATION

**Freezing Point:** N/D

**Melting Point:** N/A

**Pour Point:** -6°C (21°F)

**DMSO Extract (mineral oil only), IP-346:** < 3 %wt

#### SECTION 10

#### STABILITY AND REACTIVITY

**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

**MATERIALS TO AVOID:** Strong oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**HAZARDOUS POLYMERIZATION:** Will not occur.

#### SECTION 11

#### TOXICOLOGICAL INFORMATION

##### ACUTE TOXICITY

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
<b>Inhalation</b>	
Toxicity (Rat): LC50 > 5000 mg/m <sup>3</sup>	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
<b>Ingestion</b>	
Toxicity (Rat): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
<b>Skin</b>	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
<b>Eye</b>	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

##### CHRONIC/OTHER EFFECTS

###### Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

Product Name: MOBIL DTE FM 32

Revision Date: 21Feb2005

Page 6 of 8

Additional information is available by request.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

## SECTION 12

## ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

### ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

### MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

### PERSISTENCE AND DEGRADABILITY

#### Biodegradation:

Base oil component -- Expected to be inherently biodegradable

### BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

## SECTION 13

## DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

### DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

### REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

**Empty Container Warning** PRECAUTIONARY LABEL TEXT: Empty containers may retain residue and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult

Product Name: MOBIL DTE FM 32

Revision Date: 21Feb2005

Page 7 of 8

to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

#### SECTION 14

#### TRANSPORT INFORMATION

**LAND (DOT)** : Not Regulated for Land Transport

**LAND (TDG)** : Not Regulated for Land Transport

**SEA (IMDG)** : Not Regulated for Sea Transport according to IMDG-Code

**AIR (IATA)** : Not Regulated for Air Transport

#### SECTION 15

#### REGULATORY INFORMATION

**OSHA HAZARD COMMUNICATION STANDARD:** When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

**NATIONAL CHEMICAL INVENTORY LISTING:** AICS, DSL, EINECS, ENCS, KECI, PICCS, TSCA

**EPCRA:** This material contains no extremely hazardous substances.

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** None.

**SARA (313) TOXIC RELEASE INVENTORY:** This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

**The Following Ingredients are Cited on the Lists Below:\***

Chemical Name	CAS Number	List Citations
DIPHENYLAMINE	122-39-4	5, 9

#### --REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

\* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.

#### SECTION 16

#### OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

Product Name: MOBIL DTE FM 32

Revision Date: 21Feb2005

Page 8 of 8

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**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**

No revision information is available.

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MHC: 0, 0, 0, 0, 0, 0

PPEC: A

DGN: 2007182XUS (546656)

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Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 1 of 10

## SAFETY DATA SHEET

### SECTION 1

### PRODUCT AND COMPANY IDENTIFICATION

#### PRODUCT

**Product Name:** MOBILITH SHC 460

**Product Description:** Synthetic Base Stocks and Additives

**Product Code:** 2015A0204050, 643551-00, 970748

**Intended Use:** Grease

#### COMPANY IDENTIFICATION

**Supplier:** EXXON MOBIL CORPORATION

3225 GALLOWS RD.

FAIRFAX, VA. 22037 USA

**24 Hour Health Emergency** 609-737-4411

**Transportation Emergency Phone** 800-424-9300

**ExxonMobil Transportation No.** 281-834-3296

**Product Technical Information** 800-662-4525, 800-947-9147

**MSDS Internet Address** <http://www.exxon.com>, <http://www.mobil.com>

### SECTION 2

### HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

**Other hazard information:**

**HAZARD NOT OTHERWISE CLASSIFIED (HNOC):** None as defined under 29 CFR 1900.1200.

#### PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

#### HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

#### ENVIRONMENTAL HAZARDS

No significant hazards.

**NFPA Hazard ID:** Health: 0 Flammability: 1 Reactivity: 0

**HMIS Hazard ID:** Health: 0 Flammability: 1 Reactivity: 0

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary

Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 2 of 10

from person to person.

### SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

#### Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
1H-BENZOTRIAZOLE-1-METHANAMINE, N,N-BIS(2-ETHYLHEXYL)-METHYL-	94270-86-7	0.1 - < 1%	H315, H317, H401, H411
BENZENAMINE, N-PHENYL-, REACTION PRODUCTS WITH 2,4,4-TRIMETHYLPENTENE	68411-46-1	1 - < 5%	H402, H412
LITHIUM HYDROXIDE MONOHYDRATE	1310-66-3	0.1 - < 1%	H302, H314(1B)
LITHIUM SALT OF ALIPHATIC ACID	CONFIDENTIAL	1 - < 5%	H302
METHYLENE BIS(DIBUTYLDITHIOCARBAMATE)	10254-57-6	1 - < 5%	H413
ZINC DITHIOPHOSPHATE	68649-42-3	1 - < 2.5%	H315, H318, H401, H411

\* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

### SECTION 4 FIRST AID MEASURES

#### INHALATION

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

#### SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

#### EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

#### INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

### SECTION 5 FIRE FIGHTING MEASURES

#### EXTINGUISHING MEDIA

Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 3 of 10

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**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Inappropriate Extinguishing Media:** Straight Streams of Water

## FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Hazardous Combustion Products:** Smoke, Fume, Aldehydes, Sulfur oxides, Incomplete combustion products, Oxides of carbon

## FLAMMABILITY PROPERTIES

**Flash Point [Method]:** >204°C (400°F) [EST. FOR OIL, ASTM D-92 (COC)]

**Flammable Limits (Approximate volume % in air):** LEL: N/D UEL: N/D

**Autoignition Temperature:** N/D

<b>SECTION 6</b>
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<b>ACCIDENTAL RELEASE MEASURES</b>
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## NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

## PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

## SPILL MANAGEMENT

**Land Spill:** Stop leak if you can do it without risk. Scrape up spilled material with shovels into a suitable container for recycle or disposal.

**Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

## ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas.

Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 4 of 10

## SECTION 7 HANDLING AND STORAGE

### HANDLING

Prevent small spills and leakage to avoid slip hazard.

**Static Accumulator:** This material is not a static accumulator.

### STORAGE

Do not store in open or unlabelled containers. Keep away from incompatible materials.

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE LIMIT VALUES

**Exposure limits/standards (Note: Exposure limits are not additive)**

Substance Name	Form	Limit / Standard			NOTE	Source
LITHIUM HYDROXIDE MONOHYDRATE		Ceiling	1.8 mg/m3		N/A	AIHA WEEL

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

### ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

### PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material

Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 5 of 10

include:

No protection is ordinarily required under normal conditions of use.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

## ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

## SECTION 9

## PHYSICAL AND CHEMICAL PROPERTIES

**Note:** Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

### GENERAL INFORMATION

**Physical State:** Solid

**Form:** Semi-fluid

**Color:** Red

**Odor:** Characteristic

**Odor Threshold:** N/D

### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

**Relative Density (at 15 °C):** 1

**Flammability (Solid, Gas):** N/D

**Flash Point [Method]:** >204°C (400°F) [EST. FOR OIL, ASTM D-92 (COC)]

**Flammable Limits (Approximate volume % in air):** LEL: N/D UEL: N/D

**Autoignition Temperature:** N/D

**Boiling Point / Range:** > 316°C (600°F) [Estimated]

**Decomposition Temperature:** N/D

**Vapor Density (Air = 1):** N/D

**Vapor Pressure:** < 0.013 kPa (0.1 mm Hg) at 20 °C [Estimated]

**Evaporation Rate (n-butyl acetate = 1):** N/D

**pH:** N/A

**Log Pow (n-Octanol/Water Partition Coefficient):** > 3.5 [Estimated]

**Solubility in Water:** Negligible

**Viscosity:** 460 cSt (460 mm<sup>2</sup>/sec) at 40 °C

**Oxidizing Properties:** See Hazards Identification Section.

### OTHER INFORMATION

**Freezing Point:** N/D

Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 6 of 10

**Melting Point:** N/D

NOTE: Most physical properties above are for the oil component in the material.

SECTION 10	STABILITY AND REACTIVITY
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**REACTIVITY:** See sub-sections below.

**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

**MATERIALS TO AVOID:** Strong oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**POSSIBILITY OF HAZARDOUS REACTIONS:** Hazardous polymerization will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
------------	---------------------------

**INFORMATION ON TOXICOLOGICAL EFFECTS**

<u>Hazard Class</u>	<u>Conclusion / Remarks</u>
<b>Inhalation</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
<b>Ingestion</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
<b>Skin</b>	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
<b>Eye</b>	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
<b>Sensitization</b>	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
<b>Aspiration:</b> Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
<b>Germ Cell Mutagenicity:</b> No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
<b>Carcinogenicity:</b> No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
<b>Reproductive Toxicity:</b> No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
<b>Lactation:</b> No end point data for material.	Not expected to cause harm to breast-fed children.

Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 7 of 10

<b>Specific Target Organ Toxicity (STOT)</b>	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

## TOXICITY FOR SUBSTANCES

<b>NAME</b>	<b>ACUTE TOXICITY</b>
ZINC DITHIOPHOSPHATE	Dermal Lethality: LD50 > 2000 mg/kg (Rabbit); Oral Lethality: LD50 > 2000 mg/kg (Rat)

## OTHER INFORMATION

**For the product itself:**

An ingredient or ingredients that are classified as a skin sensitizer.

### Contains:

Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitizing in test animals and humans.

**The following ingredients are cited on the lists below:** None.

### --REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

## SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

### ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

### MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.



Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 8 of 10

## SECTION 13

## DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

### DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

### REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

**Empty Container Warning** Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.**

## SECTION 14

## TRANSPORT INFORMATION

**LAND (DOT):** Not Regulated for Land Transport

**LAND (TDG):** Not Regulated for Land Transport

**SEA (IMDG):** Not Regulated for Sea Transport according to IMDG-Code

**Marine Pollutant:** No

**AIR (IATA):** Not Regulated for Air Transport

## SECTION 15

## REGULATORY INFORMATION

**OSHA HAZARD COMMUNICATION STANDARD:** This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

**Complies with the following national/regional chemical inventory requirements:** AICS, IECSC, KECI, TSCA  
**Special Cases:**

Inventory	Status
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Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 9 of 10

NDSL

Restrictions Apply

**EPCRA SECTION 302:** This material contains no extremely hazardous substances.

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** None.

**SARA (313) TOXIC RELEASE INVENTORY:**

Chemical Name	CAS Number	Typical Value
ZINC DITHIOPHOSPHATE	68649-42-3	1 - < 2.5%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
NAPHTHENIC ACIDS, ZINC SALTS	12001-85-3	15
ZINC DITHIOPHOSPHATE	68649-42-3	13, 15, 17, 19
ZINC NEODECANOATE	27253-29-8	15

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

**SECTION 16**

**OTHER INFORMATION**

N/D = Not determined, N/A = Not applicable

**KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):**

H302: Harmful if swallowed; Acute Tox Oral, Cat 4

H314(1B): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1B

H315: Causes skin irritation; Skin Corr/Irritation, Cat 2

H317: May cause allergic skin reaction; Skin Sensitization, Cat 1

H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1

H401: Toxic to aquatic life; Acute Env Tox, Cat 2

H402: Harmful to aquatic life; Acute Env Tox, Cat 3

H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

H412: Harmful to aquatic life with long lasting effects; Chronic Env Tox, Cat 3

H413: May cause long lasting harmful effects to aquatic life; Chronic Env Tox, Cat 4

Product Name: MOBILITH SHC 460

Revision Date: 30 May 2014

Page 10 of 10

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**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**

Updates made in accordance with implementation of GHS requirements.

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# BlueDEF Diesel Exhaust Fluid

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Mixture  
Product name : BlueDEF Diesel Exhaust Fluid

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Solution for NOx reduction in SCR systems

#### 1.3. Details of the supplier of the safety data sheet

Old World Industries, LLC  
4065 Commercial Ave.  
Northbrook, IL 60062 - USA  
T (847) 559-2000  
[www.oldworldind.com](http://www.oldworldind.com)

#### 1.4. Emergency telephone number

Emergency number : (800) 424-9300; (703) 527 3887 (International)  
Chemtrec

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Not classified

#### 2.2. Label elements

##### GHS-US labelling

Signal word (GHS-US) : None  
Hazard statements (GHS-US) : None  
Precautionary statements (GHS-US) : None

#### 2.3. Other hazards

No additional information available

#### 2.4. Unknown acute toxicity (GHS US)

No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Not applicable

#### 3.2. Mixture

Name	Product identifier	% by wt	GHS-US classification
water	(CAS No) 7732-18-5	67.5	Not classified
urea	(CAS No) 57-13-6	32.5	Not classified

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).  
First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.  
First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.  
First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.  
First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

#### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

# BlueDEF Diesel Exhaust Fluid

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Sand.  
Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Special hazards arising from the substance or mixture

No additional information available

### 5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.  
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : The EPA has no established reportable quantity for spills for this material, secondary containment is not specified.

#### 6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.  
Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials. For minor spillages wash down with excess of water. Mop up small spills.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Direct sunlight, Heat sources. Keep container closed when not in use.  
Incompatible products : Strong bases. Strong acids.  
Incompatible materials : Sources of ignition. Direct sunlight.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Exposure controls

Personal protective equipment : Avoid all unnecessary exposure. Gloves. Protective goggles.



# BlueDEF Diesel Exhaust Fluid

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Hand protection	: Wear protective gloves.
Eye protection	: Chemical goggles or safety glasses.
Respiratory protection	: Wear appropriate mask.
Other information	: Do not eat, drink or smoke during use.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Colorless
Odor	: characteristic ammonia odor
Odor threshold	: No data available
pH	: 9 - 10
Relative evaporation rate (butylacetate=1)	: < 1
Freezing point	: -11 °C (12 °F)
Boiling point	: > 100 °C (212 °F)
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: Not Applicable
Relative vapor density at 20 °C	: 0.6 H <sub>2</sub> O, >1
Specific Gravity	: 1.09
Solubility	: Soluble in water. Water: 100 %
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

Not established.

#### 10.4. Conditions to avoid

No additional information available

#### 10.5. Incompatible materials

Strong acids. Strong bases. oxidizing agents (peroxides, chromates, dichromates).

#### 10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide. Fume.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity	: Not classified
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# BlueDEF Diesel Exhaust Fluid

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

urea (57-13-6)	
LD50 oral rat	8,471.00 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Literature study; 14300 mg/kg bodyweight; Rat; Experimental value)
LD50 dermal rat	> 3,200.00 mg/kg (Rat; Literature study)
LD50 dermal rabbit	> 21,000.00 mg/kg (Rabbit; Literature study)
ATE US (oral)	8,471.00 mg/kg bodyweight

Skin corrosion/irritation	: Not classified pH: 9 - 10
Serious eye damage/irritation	: Not classified pH: 9 - 10
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

### 12.1. Toxicity

urea (57-13-6)	
LC50 fish 1	> 6,810.00 mg/l (96 h; Leuciscus idus; Nominal concentration)
EC50 Daphnia 1	> 10,000.00 mg/l (48 h; Daphnia magna; Nominal concentration)
LC50 fish 2	17,500.00 mg/l (96 h; Poecilia reticulata)
EC50 Daphnia 2	> 10,000.00 mg/l (24 h; Daphnia magna)
TLM fish 1	17500 ppm (96 h; Poecilia reticulata)
Threshold limit other aquatic organisms 1	120000 mg/l (16 h; Bacteria; Toxicity test)
Threshold limit other aquatic organisms 2	> 10000 mg/l (Pseudomonas putida)
Threshold limit algae 1	> 10000 mg/l (168 h; Scenedesmus quadricauda; Growth rate)
Threshold limit algae 2	47 mg/l (192 h; Microcystis aeruginosa; Growth rate)

### 12.2. Persistence and degradability

urea (57-13-6)	
Persistence and degradability	Inherently biodegradable. Hydrolysis in water. Highly mobile in soil.
ThOD	0.27 g O <sub>2</sub> /g substance

### 12.3. Bioaccumulative potential

urea (57-13-6)	
BCF fish 1	1.00 (72 h; Brachydanio rerio; Fresh water)
BCF other aquatic organisms 1	11,700.00 (Chlorella sp.)
Log Pow	< -1.73 (Experimental value; EU Method A.8: Partition Coefficient)
Bioaccumulative potential	Bioaccumulation: not applicable.

### 12.4. Mobility in soil

urea (57-13-6)	
Mobility in soil	Not applicable



# BlueDEF Diesel Exhaust Fluid

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 12.5. Other adverse effects

Effect on ozone layer	: No additional information available
Effect on global warming	: No known ecological damage caused by this product. No additional information available
Other information	: Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations	: As a non-hazardous liquid waste, it should be solidified with stabilizing agents such as sand, fly ash, or clay absorbent, so that no free liquid remains before disposal to an industrial waste landfill.
Ecology - waste materials	: Avoid release to the environment.

## SECTION 14: Transport information

In accordance with DOT	
Not a dangerous good in sense of transport regulations	
Other information	: Not regulated by DOT.

### ADR

UN-No. (ADR)	: Not regulated by ADR
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### Transport by sea

UN-No. (IMDG)	: Not regulated by IMDG
---------------	-------------------------

### Air transport

UN-No. (IATA)	: Not regulated by IATA
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## SECTION 15: Regulatory information

### 15.1. US Federal regulations

BlueDEF Diesel Exhaust Fluid	
EPA TSCA Regulatory Flag	Toxic Substances Control Act (TSCA): The intentional ingredients of this product are listed
RQ (Reportable quantity, section 304 of EPA's List of Lists)	None. This material is not classified as hazardous under U.S. EPA regulations.
SARA Section 302 Threshold Planning Quantity (TPQ)	No extremely hazardous substances are in this product.
SARA Section 311/312 Hazard Classes	Urea. No hazards resulting from the material as supplied.
urea (57-13-6)	
EPA TSCA Regulatory Flag	Toxic Substances Control Act (TSCA): The intentional ingredients of this product are listed
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

### 15.2. International regulations

#### CANADA

#### WHMIS Classification

Uncontrolled product  
according to WHMIS  
classification criteria

urea (57-13-6)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

#### EU-Regulations

No additional information available

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

No additional information available

# BlueDEF Diesel Exhaust Fluid

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified

### National regulations

<b>BlueDEF Diesel Exhaust Fluid</b>
DSL (Canada): The intentional ingredients of this product are listed
<b>urea (57-13-6)</b>
DSL (Canada): The intentional ingredients of this product are listed
EINECS (Europe): The intentional ingredients of this product are listed

### 15.3. US State regulations

## SECTION 16: Other information

NFPA health hazard

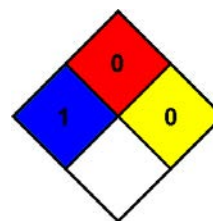
: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health

: 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability

: 0 Minimal Hazard - Materials that will not burn

Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal Protection

B - Safety glasses, Gloves

SDS GHS US (GHS HazCom 2012) OWI

*Old World Industries, LLC makes no warranty, representation or guarantee as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling and disposal of this product. Since actual use by others is beyond our control, no warranty, expressed or implied, is made by Old World Industries, LLC as to the effects of such use, the results to be obtained or the safety and toxicity of this product, nor does Old World Industries, LLC assume liability arising out of the use by others of this product referred to herein. The data in this SDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.*

**ATTACHMENT F**

**NOTICE OF FEDERAL INTEREST**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200

DALLAS TEXAS 75202-2733

August 18, 2016

Lard Oil Company  
Attn: Johnny Milazzo  
President  
914 Florida Ave., SW  
Denham Springs, LA 70726

Re: Notice of Federal Interest in an Oil Pollution Incident, Denham Springs, Livingston Parish, Louisiana.

Dear Mr. Cooley:

This letter is to inform you of a discharge of oil from a facility located at 914 Florida Ave. SW, in Denham Springs, Louisiana in Livingston Parish, for which you may be financially responsible. Under federal statutes, the United States Government has an interest in this incident and may take appropriate action to minimize damages which are threatened or which may be caused by this incident.

The discharge of a prohibited quantity of oil or a hazardous substance is a violation of the Clean Water Act, as amended by the Oil Pollution Act of 1990 (OPA). Under OPA, the responsible party is liable for clean-up costs and damages resulting from an incident. A responsible party is the owner, operator, or person in charge of a facility or vessels from which the oil is discharged or poses a threat of discharge.

You may be a responsible party for the above-mentioned incident if it is determined that you have ownership or operating interests in the facility, and that the facility is discharging oil or posing a threat of discharge of oil.

If you are a responsible party, you should clean up the discharge oil and/or take other actions to prevent or mitigate or minimize the threat of further discharges of oil. If you are a responsible party and do not act, the United States may respond for you and take such actions that are necessary to remove the discharged oil or to minimize or to mitigate the threat. The U.S. costs to respond to this incident will be billed to, and recovered from, the responsible party.

You are advised that a responsible party may lose the opportunity to limit their liability for cleanup under OPA if the responsible party fails or refuses to provide all reasonable cooperation and assistance requested by a responsible official in connection with response activities. A responsible party who fails to comply with a Federal On-Scene Coordinator (FOSC) order to

remove the discharge or to an administrative order to protect the public health and welfare may be subject to additional penalties. Under the Federal Water Pollution control Act (FWPCA), a civil penalty can amount up to \$37,500 per day of violation. Additionally you could be subject to up to three times the costs incurred by the Oil Spill Liability Fund to conduct removal actions.

If a responsible party takes adequate removal actions in this matter, federal removal actions will usually be limited to monitoring the progress of your actions and providing guidance as necessary. A removal is being done properly if it is done in accordance with federal and state statutes and regulations and in accordance with the criteria of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). If you undertake the removal actions, the adequacy of such action shall be evaluated by the FOSC. Under the FWPCA, a responsible party's actions may be taken into account in determining the amount of any penalty assessed as a result of the incident.

If you require further information concerning this matter, please contact me at (214) 215-1783. Please contact me within 24 hours from receipt of this letter to discuss cleanup.

Sincerely,

A handwritten signature in blue ink, appearing to read "Bryant Smalley", with a long horizontal flourish extending to the right.

Bryant Smalley  
Federal On-Scene Coordinator

**ATTACHMENT G**

**ACCESS AGREEMENTS**



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: Shelby Carnahan Andrews  
Address/Description of Property: 125 Hazelnut, Denham Springs, La 70722  
Mailing Address If Different: 110 La Salle, Denham Springs, La

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

  
Signature

owner  
Title

08/20/16  
Date

225-936-8875  
Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: Shelby Carnahan Andrews  
Address/Description of Property: 917 Wanda, Denham Springs, La 70726  
Mailing Address If Different: 118 LaSalle, Denham Spring

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me of my right to refuse and without threats or promises of any kind.

(b) (6)

08/20/16  
Date

owner  
Title

(b) (6)  
Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Owner  
Title

08/23/16  
Date

(b) (6)  
Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property (b) (6)

Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

Owner

Title

8/25/16

Date

(b) (6)

Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: (b) (6)

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- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

*[Handwritten Signature]*  
Title

8/24/14

Date

(b) (6)

Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: 922 Wanda Ave, Denham Springs  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)  
Signature

Rent (tenant)  
Title

8.19.16  
Date

(b) (6)  
Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: \_\_\_\_\_

Address/Description of Property: \_\_\_\_\_

Mailing Address, If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Signature

Date

Title

Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

(b) (6)

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(b) (6)

8/23/16  
Date

owner  
Title

(b) (6)  
Phone Number





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
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- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Title

8-27-16  
Date

(b) (6)

Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
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- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

Owner

Title

Date

08/25/16

(b) (6)

Phone Number

(b) (6)



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: Dena Coulee  
Address/Description of Property: 211 Capitol St.  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Dena Coulee  
Signature

Manager  
Title

08/23/10  
Date  
225-241-3233  
Phone Number

owner: Barry Hutchinson  
225-229-2168





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
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- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

Owner

Title

08/25/16  
Date

(b) (6)

Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property (b) (6)

Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

27 AUG 2016

Date

(b) (6)

Phone Number

Title



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: \_\_\_\_\_

Address/Description of Property: \_\_\_\_\_

Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
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- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Owner  
Title

8-24-2016  
Date

(b) (6)  
Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
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- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Aug 23 / 16  
Date

Owner  
Title

(b) (6)

Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Tenant

Title

Date

8/19/16

(b) (6)

Phone Number





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

(b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

owner  
Title

8/28/16  
Date

(b) (6)  
Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: First United Pentecostal Church  
Address/Description of Property: 123 Chestnut 125 Chestnut Danham Springs LA 70227  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

[Signature]

Signature

8-21-16

Date

Administrator

Title

225 485-5845

Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: First Pentecostal Church  
Address/Description of Property: 127 Chestnut Denham Springs, LA 70726  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

  
Signature

Administrator  
Title

8-27-16  
Date

225 485-5845  
Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: First United Pentecostal Church  
Address/Description of Property: 934 WANDA, DENTON SPRINGS LA 70726  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

[Signature]  
Signature

Administration  
Title

8-29-16  
Date

225-485-5845  
Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

8/20/2016  
Date

Owner  
Title

(b) (6)  
Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Owner  
Title

8/21/16  
Date

(b) (6)  
Phone Number





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200

DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. § 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

8/19/2016  
Date

Property Owner  
Title

(b) (6)  
Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Owner  
Title

8-21-16  
Date

(b) (6)  
Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

Title

8-30-2016

Date

(b) (6)

Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

Longitude: \_\_\_\_\_

Latitude: \_\_\_\_\_

Type: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: \_\_\_\_\_

- ☐ I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property for taking of such soil, water, air samples, and other media (i.e. video taping of the structures) as may be determined by EPA to be necessary.
- ☐ I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9601 *et seq*
- ☐ I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Date Aug 19 - 2016

(b) (6)  
Signature

Title

(b) (6)  
Phone Number

Analytical Results

Place a check mark in the appropriate space. Please note that if no selection is made, EPA will assume that you do not wish to be provided with the report or sample.

- ( ) Please provide me with a copy of the analytical results for my property.  
( ) Send results to: \_\_\_\_\_
- ( ) I do not wish to receive a copy of the analytical results for my property.

Please indicate if you are allowing access and your decision about sharing your results:

- ( ) Yes, I will allow access and I agree to allow the EPA to share the environmental sampling results with state and local government.
- ( ) Yes, I will allow access. Please do not share these results with other parties.
- ( ) No, I do not want the EPA to have access.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: n/a

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: BARRY HUTCHINSON  
Address/Description of Property: 311 CAPITOL ST., DENHAM SPRINGS, LA  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

[Signature]  
Signature

Owner  
Title

8/26/2016  
Date  
(225) 229-2168  
Phone Number





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

8-22-16

Date

Owner

Title

(b) (6)

Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: n/a

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

8-29-14

Date

Owner

Title

(b) (6)

Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

8-20-16  
Date

Owner  
Title

(b) (6)  
Phone Number





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions. (b) (6)
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

owner

Title

08/23/16  
Date

(b) (6)

Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS,

(b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me and without threats or promises of any kind.

(b) (6)

Signature

Owners

Title

Date

8/21/16

(b) (6)

Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: Johnny Milazzo - Lard Oil Company  
Address/Description of Property: 914 Florida Ave., S.W.  
Mailing Address If Different: Denham Springs, La 70726

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Signature

President

Title

8-19-16

Date

225-235-2682

Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: Johnny Milazzo  
Address/Description of Property: 237 La Salle  
Mailing Address If Different: see 914 Florida

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Signature

Owner

Title

8/22/16

Date

225-235-2082

Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property (b) (6)  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Title

08 / 27 / 2016  
Date

(b) (6)  
Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Date 8/20/16

Owner  
Title

\_\_\_\_\_  
Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6) (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

8/19/2016  
Date

Owen  
Title

(b) (6)  
Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

8-23-2016  
Date

Owner  
Title

(b) (6)

Phone Number





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

8/29/14

Date

(b) (6)

(b) (6)

Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: \_\_\_\_\_

Address/Description of Property: \_\_\_\_\_

Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

*Owner*

Title

8/24/16

Date

(b) (6)

Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: Jessie M Purvis  
Address/Description of Property: 201 Capitol Street, Denham Springs, LA 7072  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Jessie M Purvis  
Signature

Jessie M Purvis  
Title

8/29/16  
Date

225-937-1130  
Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

8-30-16

Date

(b) (6)

Title

Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property (b) (6)

Mailing Address If Different (b) (6)

(b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Aug 19 - 16  
Date

owner  
Title

(b) (6)

Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: ROGER SHAW  
Address/Description of Property: 921 S. PARK  
Mailing Address If Different: (b) (6)  
(b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Roger Shaw  
Signature

8-19-16  
Date

owner  
Title

225-205-1465  
Phone Number





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: (b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)  
Signature

8/19/16  
Date

Renter (tenant)  
Title

(b) (6)  
Phone Number

08/26/2016 11:43 FAX

0003/0003



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1446 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733Property ID: n/a

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: DALE STERLING  
Address/Description of Property: 922 WANDA AVENUE, DENHAM SPRINGS, LA  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

D. Sterling  
Signature

Owner  
Title

8/26/16  
Date

(225) 335-0761  
Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: (b) (6)  
(b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

8-26-16

Date

Title

(b) (6)

Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: ~~\_\_\_\_\_~~

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)

Address/Description of Property: (b) (6)

Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

*Manager*

Title

(b) (6)

Date

08/25/2016

(b) (6)

Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1446 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: n/a

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: DANIEL TRAN

Address/Description of Property: 107 Laclede Denham Spring LA

Mailing Address If Different: 70826

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions are undertaken pursuant to EPA's response and enforcement responsibilities under the Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ., as amended by the Oil Pollution Act of 1990 (OPA 90).
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Dan  
Signature

Owner  
Title

8/26/16  
Date

225 772 0114  
Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: Amanda Tröschler  
Address/Description of Property: 108 Hazelnut Denham Springs, LA 70726  
Mailing Address If Different: (b) (6)  
(b) (6)

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Amanda Tröschler  
Signature

08/22/16  
Date

owner  
Title

225-315-4851  
Phone Number





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: \_\_\_\_\_

Address/Description of Property: \_\_\_\_\_

Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Signature

Owner

Title

Date

(b) (6)

Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)  
Signature

Owner  
Title

8-22-16  
Date  
(b) (6)  
Phone Number



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

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Address/Description of Property: (b) (6)

Mailing Address If Different: (b) (6)

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- I recognize that these actions by the EPA are undertaken in accordance with its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act (ACERCLA), 42 U.S.C. ' 9601 *et seq.*
- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

Signature

Home owner

Title

8/19/16

Date

(b) (6)

Phone Number





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

## CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

Name of Owner: (b) (6)  
Address/Description of Property: (b) (6)  
Mailing Address If Different: \_\_\_\_\_

- I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to my property to conduct response actions as deemed necessary by EPA to address the release or threatened release of a hazardous substance at or around the Property, including removal of contaminated soil and, to be explained to me/us prior to taking the actions.
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- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)

14 Aug 2016  
Date

Don  
Title

(b) (6)  
Phone Number



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200  
DALLAS, TEXAS 75202-2733

Property ID: \_\_\_\_\_

CONSENT FOR ACCESS TO PROPERTY TO CONDUCT RESPONSE ACTIONS

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- I am the property owner, or a responsible agent of the property owner, and I warrant that I have the authority to enter into this access agreement. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

(b) (6)  
Signature

owner  
Title

08/21/16  
Date

(b) (6)  
Phone Number



**ATTACHMENT H**

**QUALITY ASSURANCE SAMPLING PLAN (QASP)**

**QUALITY ASSURANCE SAMPLING PLAN**  
**FOR**  
**LARD OIL COMPANY OIL SPILL**  
**914 FLORIDA STREET SW**  
**DENHAM SPRINGS, LIVINGSTON PARISH, LOUISIANA**

Prepared for

**U.S. Environmental Protection Agency Region 6**  
Will LaBombard, Project Officer  
1445 Ross Avenue  
Dallas, Texas 75202

Contract No. EP-W-06-042  
Technical Direction Document No. 2/WESTON-042-16-020  
WESTON Work Order No. 20406.012.002.1037.01  
NRC No. 1156486  
CERCLIS ID N/A  
FPN E16620  
EPA OSC: Bryant Smalley  
START-3 PTL: Keith Delhomme

Prepared by

**Weston Solutions, Inc.**  
Cecilia H. Shappee P.E., Program Manager  
5599 San Felipe, Suite 700  
Houston, Texas 77056  
(713) 985-6600

September 2016

## TABLE OF CONTENTS

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Section	Page
<b>1. INTRODUCTION .....</b>	<b>1-1</b>
1.1 PROJECT OBJECTIVES .....	1-1
1.2 PROJECT TEAM .....	1-2
1.3 QASP FORMAT .....	1-2
<b>2. SITE DESCRIPTION AND BACKGROUND .....</b>	<b>2-1</b>
<b>3. SAMPLING APPROACH AND PROCEDURES.....</b>	<b>3-1</b>
3.1 OVERVIEW OF SAMPLING ACTIVITIES.....	3-1
3.1.1 Health and Safety Plan.....	3-1
3.1.2 Data Quality Objectives .....	3-1
3.1.3 Field Activities Review Meeting .....	3-2
3.2 SAMPLING PLAN DESIGN AND METHODS .....	3-2
3.2.1 Soil, Sediment, and Vegetative Sampling.....	3-2
3.2.2 Housing-Material Wipe Samples .....	3-3
3.2.3 Investigation-Derived Waste .....	3-3
3.2.4 Sampling and Sample Handling Procedures.....	3-4
3.2.5 Quality Assurance/Quality Control Samples .....	3-4
3.3 SAMPLE MANAGEMENT .....	3-4
3.4 DECONTAMINATION .....	3-5
3.5 SAMPLE PRESERVATION, CONTAINERS, AND HOLD TIMES.....	3-6
<b>4. ANALYTICAL METHODS AND DATA VALIDATION.....</b>	<b>4-1</b>
<b>5. QUALITY ASSURANCE.....</b>	<b>5-1</b>
5.1 SAMPLE CUSTODY PROCEDURES .....	5-1
5.2 PROJECT DOCUMENTATION.....	5-2
5.3 FIELD DOCUMENTATION .....	5-3
5.4 REPORT PREPARATION .....	5-6

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## LIST OF APPENDICES

---

Appendix A	Site-Specific Data Quality Objectives
Appendix B	Standard Operating Procedures
Appendix C	TDD No. 2/WESTON-042-16-020

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## LIST OF FIGURES

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Figure 1-1	Site Location Map
Figure 2-1	Site Area Map

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## LIST OF TABLES

---

Table 3-1	Requirements for Containers, Preservation Techniques, Sample Volumes, and Holding Times .....	3-7
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## 1. INTRODUCTION

Weston Solutions, Inc. (WESTON®), the Superfund Technical Assessment and Response Team (START-3) contractor (EPA team), has been verbally tasked by the U.S. Environmental Protection Agency (EPA) Region 6 Emergency Management Branch (EMB) under Contract Number EP-W-06-042, to perform oil spill sampling activities associated with the Lard Oil Company oil spill located at 914 Florida St., Denham Springs, Livingston Parish, Louisiana (see Figure 1-1). This Quality Assurance Sampling Plan (QASP) has been prepared to describe the sampling and analytical scope of work to be completed as part of the emergency response activities.

### 1.1 PROJECT OBJECTIVES

START-3 is providing technical assistance to EPA Region 6 by performing emergency response activities to collect the data necessary to support a determination by EPA that the site presents a threat to public health or welfare of the United States or the environment in accordance with *40 Code of Federal Regulations (CFR) 300.415 and Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ, as amended by the Oil Pollution Act of 1990 (OPA 90)*.

The project objective of the Oil Spill Response is to determine the nature and extent of site-related oil contamination.

The project objective will be achieved by conducting the following activities:

- Collection and laboratory analysis of oil identification/presence samples. Multi-media (soil, sediment and vegetation) samples will be collected from flood impacted areas affected by the oil spill scene.
- Collection and laboratory analysis of comparative oil fingerprint samples, which include spill-source samples collected from the Lard Oil Company facility and multi-media samples collected from materials located within potential off-site migration areas.
- Collection and laboratory analysis of indoor wipe samples from nearby residential/commercial building materials impacted by the flood. Wipe samples will be analyzed for TPH s (DRO & ORO) constituents. The EPA Team will collect confirmation wipe samples from the same residential homes and commercial businesses as the Responsible Party (RP) to ensure data reliability and quality assurance.



- Review and evaluation of samples data compared to RP data results and compared to Louisiana Department of Environmental Quality (LDEQ), Risk Evaluation/Corrective Action Program (RECAP), October, 2003.

The EPA team will achieve these objectives to determine if further action is required or if no further action is warranted.

## **1.2 PROJECT TEAM**

The EPA team will be led by EPA OSC Bryant Smalley and will consist of a Project Team Leader (PTL) and Field Safety Officer (FSO) and additional EPA team members as needed. The PTL will be responsible for the technical quality of work performed in the field and will serve as the START-3 liaison to EPA Region 6 in the field during the site activities. The PTL, with the concurrence of EPA, will determine the precise locations for sample collection in the field, collect samples as necessary, log the activities at each sample location in the field logbook, and verify the sample documentation. The PTL will be responsible for entering all samples collected into SCRIBE and producing accurate Chain-of-Custody (COC) documentation for the samples during the collection activities. The PTL will also be responsible for entering daily operations and sample collection data into the Regional Response Center - Enterprise Data Management System (RRC-EDMS) Response Manager. Additionally, the project-specific website on epaosc.net will be kept up-to-date. The PTL will also oversee the packaging and shipping of samples to the EPA-approved laboratory.

## **1.3 QASP FORMAT**

This QASP has been organized in a format that is intended to facilitate and effectively meet the objective of the sampling action. The QASP is organized as follows:

- Section 1 – Introduction
- Section 2 – Site Description and Background
- Section 3 – Sampling Approach and Procedures
- Section 4 – Analytical Methods and Data Validation
- Section 5 – Quality Assurance

Appendices are attached with the following information:

- Appendix A – Site-Specific Data Quality Objectives
- Appendix B – Standard Operating Procedures
- Appendix C – TDD No. 2/WESTON-042-16-020

## **2. SITE DESCRIPTION AND BACKGROUND**

On August 18, 2016, EPA responded to a report of an oil spill from Lard Oil Co., located at 914 Florida Ave. SW, in Denham Springs, Livingston Parish Louisiana. The facility is an active petroleum, oil and lubricant (POL) packaging company that provides repackaging of bulk POL materials into custom, distributable products for the consumer marketplace. Slow-moving storms resulted in more than two feet of rain around Denham Springs August 13-14, 2016, causing flooding of the Amite River. Floodwaters displaced oil containers and discharged up to 2,150 gallons of engine lubrication oils from the facility to the surrounding neighborhood. Affected homes and businesses appear to be primarily southeast of the facility along Capitol, LaSalle, Hazelnut, and Chestnut streets as well as several cross streets to Range Avenue (see Figure 2-1).

Discharged oil impacted homes, businesses, vegetation and yards before being carried away in floodwaters. Stormwater drains to Grays Creek to the east, then southward to the Amite River which flows east to Lake Maurepas and Lake Pontchartrain, which meet the definition of “navigable waters” of the United States (US) as defined in Section 502(7) of the Federal Water Pollution Control Act (FWPCA).

### **3. SAMPLING APPROACH AND PROCEDURES**

The specific field investigation activities that will be conducted during the sampling process are presented in the following subsections. Sampling procedures are also included. Sample locations will be determined in the field based on visible evidence of oil. Samples will be analyzed by the following laboratory methods:

- Oil Identification and Comparative Oil Fingerprint Analysis (U.S. Coast Guard Marine Safety Laboratory) for spill-source liquid and multi-media (soil, sediment and vegetation) samples.
- Total Petroleum Hydrocarbons (TPH) - Diesel Range Organics (DRO) and Oil Range Organics (ORO), EPA Method 8015 for indoor wipe samples.

#### **3.1 OVERVIEW OF SAMPLING ACTIVITIES**

The nature and extent of site-related contamination will be evaluated by collecting and analyzing multi-media samples from field-selected locations where migrating oils accumulated on residential and commercial properties and in stormwater ditches downstream of the Lard Oil facility.

##### **3.1.1 Health and Safety Plan**

The EPA team developed a specific task associated with multi-media sampling. This task has been incorporated into the overall Health and Safety Plan (HASP) developed during the emergency response.

##### **3.1.2 Data Quality Objectives**

The objectives of the sampling activities are three-fold: 1) to collect data that identifies whether downstream soil, sediment, and/or housing and building materials have been affected as a result of an oil release from the Lard Oil facility, 2) to compare analytical fingerprint data of samples collected from within the Lard Oil facility and from within the suspected migration area, and 3) to assist in the quality assurance of the sampling procedures and laboratory analytical data of Responsible Party (RP) via split sampling, allowing an evaluation of the reproducibility of results. The Data Quality Objectives (DQOs) for this data were developed using the seven-step

process set out in *EPA Guidance for Quality Assurance Project Plans: EPA QA/G-5* and is included as Appendix A.

### **3.1.3 Field Activities Review Meeting**

Prior to mobilizing to the site, the PTL will conduct a meeting with the field team to familiarize them with the project scope of work, to discuss the planned field activities and roles and responsibilities, and to review the project Health and Safety Plan (HASP) and other relevant operating procedures.

## **3.2 SAMPLING PLAN DESIGN AND METHODS**

Sampling will be conducted in general accordance with the EPA *Compendium of Emergency Response Team (ERT) Soil Sampling and Surface Geophysics Procedures* and with WESTON and EPA ERT Standard Operating Procedures (SOPs) (Appendix B). SOPs include WESTON SOPs No. 1001.01 and 1002.04 (Surface Soil and Sediment Sampling) and EPA ERT SOP 2011 (Chip, Wipe, and Sweep Sampling). The specific sampling, decontamination, and sample handling procedures, including disposition of investigation-derived waste (IDW), are described in the following subsections. The following subsections describe the proposed sampling, sample handling procedures and field quality control (QC) samples for the removal assessment activities. The EPA OSC will be notified, and concurrence will be obtained should significant deviations from the planned sampling activities are proposed. Details regarding deviations of the QASP will be documented in the START-3 site logbook.

### **3.2.1 Soil, Sediment, and Vegetative Sampling**

The EPA team will collect soil, sediment, and vegetation samples in support of the Lard Oil Company Oil Spill response activities. It is estimated that up to 20 of these types of samples (Multi-media) will be collected. Biased, grab surface soil samples will be collected from areas on the Lard Oil facility where visual evidence suggests that POL products have spilled onto the ground. In addition, liquid oil samples will be collected from bulk containers that Lard Oil representatives identified as containing similar oil as containers that spilled their contents. EPA will also collect biased, grab soil, sediment and vegetation samples from residential, commercial and stormwater ditches that showed visual evidence of the presence of oil spill material. Soil

and sediment samples will be collected 0 to 3 inches below ground surface utilizing disposable plastic scoops. Vegetative samples will include the collection of affected leaves/foilage material. Samples will be collected in the appropriate sample containers and submitted to the United States Coast Guard Marine Safety Laboratory in New London, Connecticut for analysis. Sampling personnel will change gloves between each sample collection location and between sample handling activities. Samples will be assembled and catalogued prior to shipping to the designated laboratory (following WESTON SOP 1101.1 and 1102.01). Applicable SOPs are included in Appendix B.

### **3.2.2 Housing-Material Wipe Samples**

The EPA team will also collect split indoor residential/ commercial building-material wipe samples. It is estimated that up to 10 of these types of samples will be collected. The samples will be collected in general accordance with EPA ERT SOP 2011 (Chip, Wipe, and Sweep Sampling). A 10-centimeter-square gauze dampened with deionized water will be used to wipe the designated surface area of the most likely affected indoor materials. Each wipe sample will be collected over standard 10-centimeter by 10-centimeter surface area. The gauze will then be placed in clean, laboratory-prepared containers. Sampling personnel will change gloves between each sample collection location and between sample handling activities. The samples will be submitted to ALS Laboratory in Houston, Texas for Total Petroleum Hydrocarbons – Diesel Range Organics (TPH-DRO) and Total Petroleum Hydrocarbons – Oil Range Organics (TPH-ORO) analyses by EPA Method 8015. Samples will be assembled and catalogued prior to shipping to the designated laboratory (following WESTON SOP 1101.1 and 1102.01). Applicable SOPs are included in Appendix B.

### **3.2.3 Investigation-Derived Waste**

Attempts will be made to eliminate or minimize the generation of investigation-derived waste (IDW) during the investigation. The analytical data from the collected samples will be reviewed after the completion of the field activities, and disposal options will be evaluated accordingly.



### **3.2.4 Sampling and Sample Handling Procedures**

The volume of the sample collected will be sufficient to perform the analysis requested. Samples will be stored in the proper types of containers and preserved in a manner for the analysis to be performed as indicated in Table 3-1.

All clean, decontaminated sampling equipment and sample containers will be maintained in a clean, segregated area. All samples will be collected with clean, dedicated sampling equipment. All samples collected for laboratory analysis will be placed directly into pre-cleaned, unused containers. Sampling personnel will change gloves between each sample collection/handling. All samples will be assembled and catalogued prior to shipping to the designated laboratories.

### **3.2.5 Quality Assurance/Quality Control Samples**

The EPA team will collect field duplicate samples during the assessment sampling activities as part of the Quality Assurance/Quality Control (QA/QC) program (SOP 1005.01). Matrix spike/matrix spike duplicates will not be collected per conversations with the U.S. Coast Guard Marine Safety Laboratory and ALS Laboratory. QA/QC samples will be collected according to the following protocol:

- Blind field duplicate sediment samples will be collected during sampling activities at locations selected by the START-3 PTL. The data obtained from these samples will be used to assist in the quality assurance of the sampling procedures and laboratory analytical data by allowing an evaluation of reproducibility of results. Efforts will be made to collect duplicate samples in locations where there is visual evidence of contamination or where contamination is suspected. Blind field duplicate samples will be collected at the rate of 1 duplicate for every 10 samples collected.

## **3.3 SAMPLE MANAGEMENT**

Specific nomenclature that will be used by the EPA team will provide a consistent means of facilitating the sampling and overall data management for the project as defined in the SOPs (Appendix B). Any deviations from the sample nomenclature proposed below must be pre-approved. The general nomenclature consists of the following components:

- Geographic location or on-site sample location.
- QA/QC type (normal, duplicate, rinsate blank, etc.).

- Sequence (e.g., which sample it represents).
- Date (of sampling activity).

The following presents the sample nomenclature for analytical samples that will generate unique sample names compatible with most data management systems. The sample nomenclature is based upon specific requirements for reporting these results.

#### **SAMPLE NOMENCLATURE – SOIL, SEDIMENT and VEGETATION**

**(b) (6)**

##### **Where:**

<b>Property ID:</b>	An identifier used to designate the particular property or Area of Concern (AOC) where the sample was collected.
<b>Numerical Sequence:</b>	An ascending number beginning with '1' used to designate the sample numerical position within the total number of samples collected.
<b>QC Type:</b>	A one-digit code used to designate the QC type of the sample
<b>MMDDYYYY:</b>	The date that the sample was collected, beginning with the 2-digit numerical month and date and the 4-digit year.

##### **Examples:**

- **(b) (6)** Represents the normal soil sample collected from the Lard Oil facility.

### **3.4 DECONTAMINATION**

Decontamination of sampling equipment is not anticipated for this sampling event. The EPA team will use dedicated sampling equipment whenever possible. If the use of non-dedicated sampling equipment is required during the sample collection process, that equipment will be thoroughly decontaminated before initial use, between use, and at the end of the field investigation. If required, non-dedicated equipment decontamination will be completed in the following steps:

1. Non-phosphate detergent and potable water wash to clean the equipment.
2. Final potable water rinse.
3. Equipment air-dried.

If required, decontamination activities will be conducted at a temporary decontamination pad that will be constructed in an area identified prior to the beginning of field activities (SOP 1201.01).

In the event of equipment decontamination, excess oil and fluids generated as a result of decontamination will be placed in a drum and staged on-site. The drum will be labeled on the side with the name of the site, the contents, sampling locations, and date.

### **3.5 SAMPLE PRESERVATION, CONTAINERS, AND HOLD TIMES**

Once collected, samples will be stored in coolers and kept at approximately 4°C while at the site and until they are submitted for analysis. Chain-of-custody (COC) forms will be completed for each sample shipment and sent with the samples to the designated laboratory. Samples that have been analyzed will be disposed of by the designated laboratory in accordance with the laboratory SOPs.

**Table 3-1**  
**Requirements for Containers, Preservation**  
**Techniques, Sample Volumes, and Holding Times**

Name	Analytical Methods	Container <sup>a</sup>	Preservation	Minimum Sample Volume or Weight	Maximum Holding Time
Oil Identification and Fingerprint Analysis	U.S. Coast Guard Marine Safety Laboratory	Four 40-ml vials, ¾ full	4°C	120 milli-liters	Not Defined
Wipe Samples - Total Petroleum Hydrocarbons (TPHs) – DRO and ORO	SW-846, Method 8015	One 4-oz jar	4°C	10-cm sterile gauze	14 days to extraction and 40 days to analysis

Notes:

<sup>a</sup> glass.

## 4. ANALYTICAL METHODS AND DATA VALIDATION

Soil, sediment, and vegetation samples collected by the EPA team will be analyzed by the U.S. Coast Guard Marine Safety Laboratory located in New London, Connecticut. The following methods of analyses will be conducted:

- Oil Identification and Comparative Oil Fingerprint Analysis

Residential and Commercial building material wipe samples collected by the EPA team will be analyzed by ALS Laboratory located in Houston, Texas. The following methods of analysis will be conducted:

- Total Petroleum Hydrocarbons – Diesel Range Organics (DRO) and Oil Range Organics (ORO): EPA Method 8015

START-3 will validate the analytical data generated by ALS and provide an evaluation of QA/QC samples for reporting purposes. Data validation will be conducted in accordance with the EPA CLP *National Functional Guidelines for Organic Superfund Data Review – August 2014* (EPA-S40-R-014-002). A summary of the data validation findings will be presented in Data Validation Summary Reports as part of the final report. The following will be evaluated to verify that the analytical data is within acceptable QA/QC tolerances:

- The completeness of the laboratory reports, verifying that required components of the report are present and that the samples indicated on the accompanying chain-of-custody are addressed in the report.
- The calibration and tuning records for the laboratory instruments used for the sample analyses.
- The results of internal standards analyses.
- The results of laboratory blank analyses.
- The results of laboratory control sample (LCS) analyses.
- The results of matrix spike/matrix spike duplicate (MS/MSD) analyses.
- The results of surrogate recovery analyses.
- Compound identification and quantification accuracy.
- Laboratory precision, by reviewing the results for blind field duplicates.
- Variances from the QA/QC objectives will be addressed as part of the Data Validation Summary Reports.

## **5. QUALITY ASSURANCE**

Quality assurance will be conducted in accordance with the WESTON Corporate Quality Management Manual, dated September 2012; the WESTON Programmatic Quality Assurance Project Plan (QAPP), dated December 2009; and the WESTON Quality Management Plan, dated July 2009. Following receipt of the TDD from EPA, a Quality Control (QC) officer will be assigned and will monitor work conducted throughout the entire project including reviewing interim report deliverables and field audits. The EPA team PTL will be responsible for QA/QC for the field investigation activities. The designated laboratory utilized during the investigation will be responsible for QA/QC related to the analytical work. The EPA team will also collect samples to verify that laboratory QA/QC is consistent with the required standards and to validate the laboratory data received.

### **5.1 SAMPLE CUSTODY PROCEDURES**

Because of the evidentiary nature of sample collection, the possession of samples must be traceable from the time the samples are collected until they are introduced as evidence in legal proceedings. After sample collection and identification, samples will be maintained under COC procedures. If the sample collected is to be split (laboratory QC), the sample will be allocated into similar sample containers. Sample labels completed with the same information as that on the original sample container will be attached to each of the split samples. All personnel required to package and ship coolers containing potentially hazardous material will be trained accordingly.

The EPA team will prepare and complete COC forms using the SCRIBE environmental sampling data management system for all samples sent to a START-3 designated off-site laboratory. The COC procedures are documented in WESTON SOP 1101.01, and will be made available to personnel involved with the sampling. A typical COC record will be completed each time a sample or group of samples is prepared for shipment to the laboratory. The record will repeat the information on each sample label and will serve as documentation of handling during shipment. A copy of this record will remain with the shipped samples at all times, and another copy will be retained by the member of the sampling team who originally relinquished the samples. At the



completion of the project, the Data Manager will export the SCRIBE COC documentation to the Analytical Service Tracking System (ANSETS) database.

Samples relinquished to the participating laboratories will be subject to the following procedures for transfer of custody and shipment:

- Samples will be accompanied by the COC record. When transferring possession of samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of the sample transfer on the record. The custody record documents the transfer of sample custody from the sampler to another person or to the laboratory.
- Samples will be properly packed for shipment and dispatched to the appropriate laboratory for analysis with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be custody-sealed for shipment to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape that is wrapped around the package at least twice. The custody seal will then be sealed to ensure that the only access to the package is by cutting the filament tape or breaking the seal to unwrap the tape.
- If sent by common carrier, a bill of lading or air bill will be used. Bill of lading and air bill receipts will be retained in the project file as part of the permanent documentation of sample shipping and transfer.

SOPs 1101.01 and 1102.01 describe these procedures in more detail.

## **5.2 PROJECT DOCUMENTATION**

Documents will be completed legibly in ink as well as by entry into field logbooks, Response Manager, or SCRIBE. Response Manager is the Enterprise Data Collection System designed to provide near real-time access to data normally collected in logbooks. Response Manager provides a standard data collection interface for modules of data normally collected by EPA team field personnel while on-site. These modules fall into two basic categories for response and removal. The modules include Emergency Response, Reconnaissance, Facility Assessment, Shipping, Container, Materials, Calls, HHW, and General/Site-Specific Data. The system provides users with a standard template for laptop/desktop/tablet PCs that will synchronize to the secure web interface using merge replication technology to provide access to collected data via the RRC-EDMS EPA Web Hub. Response Manager also includes an integrated GPS unit with the secure PDA application, and the coordinates collected in Response Manager are

automatically mapped on the RRC-EDMS interactive mapping site. GIS personnel can access this data to provide comprehensive site maps for decision making support.

Response Manager also includes an analytical module that is designed to give SCRIBE users the ability to synchronize the SCRIBE field data to the RRC-EDMS Web Hub. This allows analytical data managers and data validators access to data to perform reviews from anywhere with an available Internet connection. The analytical module is designed to take the analytical data management functionality of the EPA SCRIBE software and make it available for multiple users to access on one site. Response Manager also supports EPA standards such as ANSETS and SEDD and will allow users to connect to the database using the SCRIBE desktop interface, thus providing normal SCRIBE desktop-like functionality for multiple users.

### **5.3 FIELD DOCUMENTATION**

The following field documentation will be maintained as described below.

#### **Field Logbook**

The field logbook is a descriptive notebook detailing site activities and observations so that an accurate, factual account of field procedures may be reconstructed. Each individual will sign any entry he/she makes. Entries will include, at a minimum, the following:

- Site name and project number.
- Names of on-site personnel.
- Dates and times of all entries.
- Description of all site activities, including site entry and exit times.
- Noteworthy events and discussions.
- Weather conditions.
- Site observations.
- Identification and description of samples and locations.
- Subcontractor information and names of on-site personnel.
- Dates and times of sample collections and chain-of-custody information.
- Records of photographs.
- Site sketches.
- Calibration results.

## **Sample Labels**

Sample labels will be securely affixed to the sample container. The labels will clearly identify the particular sample and will include the following information:

- Site name and project number.
- Date and time the sample was collected.
- Sample preservation method.
- Analysis requested.
- Sampling location.

## **Chain-of-Custody Record**

A chain-of-custody will be maintained from the time of sample collection until final deposition. Every transfer of custody will be noted and signed for and a copy of each record will be kept by the signing individual. The chain-of-custody is discussed in Subsection 5.1 Sample Custody Procedures.

## **Custody Seal**

Custody seals demonstrate that a sample container has not been tampered with or opened. The individual who has custody of the samples will sign and date the seal and affix it to the container in such a manner that it cannot be opened without breaking the seal.

## **Photographic Documentation**

EPA team members will take photographs to document site conditions and activities as work progresses. Initial conditions should be well documented by photographing features that define the site-related contamination or special working conditions. Representative photographs should be taken of each type of site activity. The photographs should show typical operations and operating conditions as well as special situations and conditions that may arise during site activities. Site final conditions should also be documented as a record of how the site appeared at completion of the work.

All photographs should be taken with either a film camera or digital camera capable of recording the date on the image. Each photograph will be recorded in the logbook and within Response

Manager with the location of the photographer, direction the photograph was taken, the subject of the photograph, and its significance (i.e., why the picture was taken). Where appropriate, the photograph location, direction, and subject will also be shown on a site sketch and recorded within Response Manager.

## **Response Manager**

START-3 will use the Response Manager module located on the EPA Web Hub, <https://solutions.westonproject.net/epawebhub/>, to compile and organize the data collected from project activities. The information to be included encompasses some or all of the following depending on the specific project needs:

- General Module – site-specific data including location and type of site. It also includes an area for key site locations including geo-spatial data associated with the key site locations.
- Emergency Response Module – includes the following sub-modules: Basic Info, HAZMAT, Release, Time Line Log, Incident Zones, Photos, Sensitive Receptors, Evacuations, Source, Cause, and Weather.
- Reconnaissance Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for targeted reconnaissance efforts. Typically the data in this module is associated with ESF-10 deployments and the clean-up of orphaned containers and hazardous debris, but the module can be utilized for any or all reconnaissance activities.
- Facility Assessment Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for assessments of structures. Typically utilized for EPA regulated program facilities during an ESF-10 deployment of resources. This module can be utilized to track the assessment of any facilities including multiple assessments of the fixed facilities.
- Shipping Module – provides standard templates for creating a cradle-to-grave record of all waste shipments from the site until they are recycled or destroyed. This includes the ability to capture manifests and manifest line items and upload photos/original documents to support the records.
- Container Module – provides standard templates for cataloguing containers including HAZCAT and Layer information in each container. The module also allows for tracking which containers are bulked.
- Properties Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for collection of property data including access agreements and assessments of the property and current status of property regarding the site removal action.

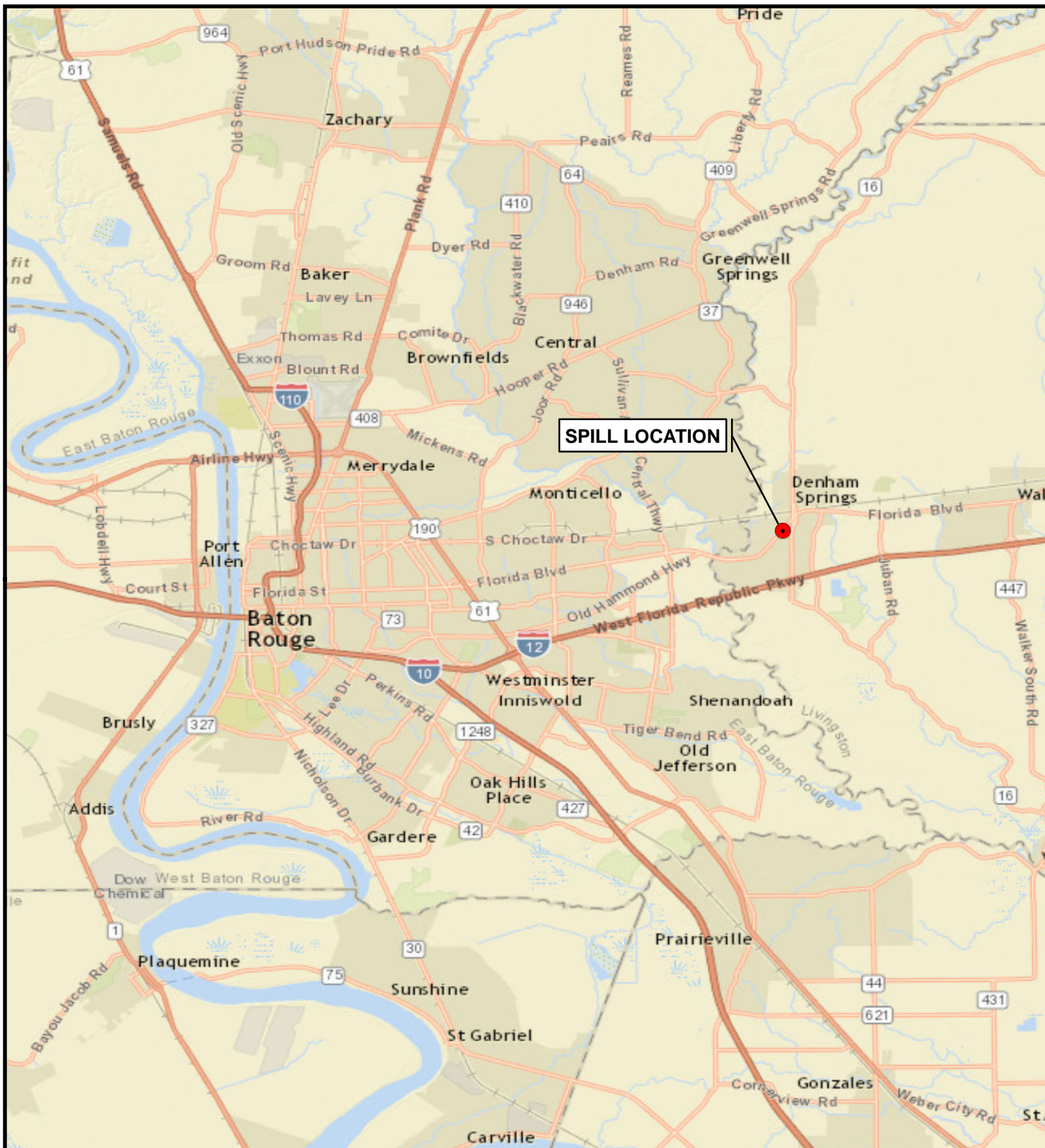
- Materials Module – provides standard templates for tracking materials that are brought on-site or that are removed from the site.
- Daily Reports – provides standard templates for tracking daily site activities, daily site personnel, and daily site notes for reporting back to the EPA OSC in a POLREP or SITREP.
- HHW Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for tracking the amount of HHW collected at individual collection stations by HHW type.
- Data Files – data files can be uploaded in the photo module section and be associated with individual records or with the site in general. The meta-data associated with that data file can be filled in using the photo log fields.

The data stored in the Response Manager database can be viewed and edited by any individual with access rights to those functions. At any time deemed necessary, POLREP and/or SITREPs can be generated by exporting the data out of Response Manager into Microsoft Excel/Word.

The database is stored on a secure server and backed up regularly.

## **5.4 REPORT PREPARATION**

At the completion of the project, EPA team members will review and validate all laboratory data and prepare a draft report of field activities and analytical results for EPA OSC review. Draft deliverable documents will be uploaded to the EPA TeamLink website for EPA OSC review and comment.



## LEGEND

● SITE LOCATION



0 4 8  
SCALE IN MILES



US EPA REGION 6

FIGURE 1-1  
SITE LOCATION MAP  
LARD OIL COMPANY OIL SPILL  
914 FLORIDA AVE SW  
DENHAM SPRINGS, LIVINGSTON PARISH, LOUISIANA

DATE  
AUGUST 2016

PROJECT NO  
20406.012.

SCALE  
AS SHOWN

SOURCE: BING MAPS AERIAL HYBRID  
NRC: 1156749, 1156486





## LEGEND

● SITE LOCATION



0 400 800

SCALE IN FEET



US EPA REGION 6

## FIGURE 2-2 SITE AREA MAP

LARD OIL COMPANY OIL SPILL  
914 FLORIDA AVE SW  
DENHAM SPRINGS, LIVINGSTON PARISH, LOUISIANA

SOURCE: BING MAPS AERIAL HYBRID  
NRC: 1156749, 1156486

DATE  
AUGUST 2016

PROJECT NO  
20406.012.

SCALE  
AS SHOWN

## **APPENDIX A**

### **DATA QUALITY OBJECTIVES**

**Data Quality Objective #1 – Soil, Sediment, Vegetation Sampling**  
**Oil Identification/Presence**  
**Lard Oil Company Oil Spill Site**

<b>STEP 1. STATE THE PROBLEM</b>	
<p>Severe flooding resulted in an oil spill release from the Lard Oil Company that affected nearby residential homes and commercial businesses.</p> <p>Biased, grab, soil, sediment, and vegetation samples will be collected from nearby flood impacted areas for oil identification analysis to determine the extent of contamination.</p>	
<b>STEP 2. IDENTIFY THE DECISION</b>	
Do flood-impacted soils, sediments, and vegetation, represented by a sample, contain oil as identified by the U.S. Coast Guard Marine Safety Laboratory.	
IDENTIFY THE ALTERNATIVE ACTIONS THAT MAY BE TAKEN BASED ON THE DECISIONS.	<ul style="list-style-type: none"> <li>• If oil is identified, the media represented by that sample will be considered contaminated and will require attention.</li> <li>• If oil is not identified, the media represented by that sample will not require attention.</li> </ul>
<b>STEP 3. IDENTIFY INPUTS TO THE DECISION</b>	
IDENTIFY THE INFORMATIONAL INPUTS NEEDED TO RESOLVE A DECISION.	<ul style="list-style-type: none"> <li>• Presence or absence of oil in multi-media samples collected from nearby flood-impacted locations.</li> </ul>
IDENTIFY THE SOURCES FOR EACH INFORMATIONAL INPUT AND LIST THE INPUTS THAT ARE OBTAINED THROUGH ENVIRONMENTAL MEASUREMENTS.	<ul style="list-style-type: none"> <li>• Soil, sediment, vegetation samples collected from most likely affected downstream flood locations.</li> <li>• Oil Identification Analysis – U.S. Coast Guard Marine Safety Laboratory</li> </ul>
BASIS FOR THE CONTAMINANT SPECIFIC ACTION LEVELS.	<ul style="list-style-type: none"> <li>• Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ, as amended by the Oil Pollution Act of 1990 (OPA 90).</li> <li>• Oil Identification Analysis – U.S. Coast Guard Marine Safety Laboratory</li> </ul>
IDENTIFY POTENTIAL SAMPLING TECHNIQUES AND APPROPRIATE ANALYTICAL METHODS.	Soil sampling techniques are described in Section 3.2.1 of the QASP

**Data Quality Objective #1 – Soil, Sediment, Vegetation Sampling**  
**Oil Identification/Presence**  
**Lard Oil Company Oil Spill Site**  
**(Continued)**

<b>STEP 4. DEFINE THE BOUNDARIES OF THE STUDY</b>	
DEFINE THE DOMAIN OR GEOGRAPHIC AREA WITHIN WHICH ALL DECISIONS MUST APPLY.	Residential and commercial properties that appear to have been affected by the Lard Oil Company oil spill.
SPECIFY THE CHARACTERISTICS THAT DEFINE THE POPULATION OF INTEREST.	.Presence or absence of oil in multi-media.
DEFINE THE SCALE OF DECISION MAKING.	The scale of decision will be for soil, sediment or vegetation represented by each sample collected from the site or flood-impacted area of concern
DETERMINE THE TIME FRAME TO WHICH THE DATA APPLY.	The data will apply until the media represented by the sample receives appropriate response actions.
DETERMINE WHEN TO COLLECT DATA.	Samples will be collected as soon as possible to determine timely remedial actions, if any, for site closeout.
IDENTIFY PRACTICAL CONSTRAINTS ON DATA COLLECTION.	<ul style="list-style-type: none"> <li>• Inclement weather.</li> <li>• Access not attainable.</li> </ul>
<b>STEP 5. DEVELOP A DECISION RULE</b>	
SPECIFY THE PARAMETER THAT CHARACTERIZES THE POPULATION OF INTEREST.	<ul style="list-style-type: none"> <li>• Presence or absence of oil as identified by Oil Identification Analysis – U.S. Coast Guard Marine Safety Laboratory</li> </ul>
SPECIFY THE ACTION LEVEL FOR THE DECISION.	Identification of oil in a sample.
DEVELOP A DECISION RULE.	If any sample is identified as containing oil, then the media represented by that sample will require attention; otherwise, the media does not require attention.

**Data Quality Objective #1 – Soil, Sediment, Vegetation Sampling**  
**Oil Identification/Presence**  
**Lard Oil Company Oil Spill Site**  
**(Continued)**

<b>STEP 6. SPECIFY LIMITS ON DECISION ERRORS</b>	
DETERMINE THE POSSIBLE RANGE OF THE PARAMETER OF INTEREST.	The range is qualitative – presence or absence of oil.
DEFINE BOTH TYPES OF DECISION ERRORS AND IDENTIFY THE POTENTIAL CONSEQUENCES OF EACH.	<p><u>Type I Error:</u> Deciding that the specified area represented by a sample does not contain oil when, in truth, the sample contains oil. The consequence of this decision error is that contaminated media will remain on-site, possibly endangering human health and the environment. There may also be potential future liability associated with clean-up costs of leaving contaminated soil on-site. This decision error is more severe.</p> <p><u>Type II Error:</u> Deciding that the specified area represented by a sample does contain oil when, in truth, it does not. The consequences of this decision error are that remediation of the specified area will proceed and unnecessary costs will be incurred.</p>
ESTABLISH THE TRUE STATE OF NATURE FOR EACH DECISION RULE.	<p>The true state of nature when the media is decided to contain oil when in fact it does not, is that the area may need remedial action.</p> <p>The true state of nature when the media is decided to not contain oil when in fact it does, is that the area may not need remedial action.</p>
DEFINE THE TRUE STATE OF NATURE FOR THE MORE SEVERE DECISION ERROR AS THE BASELINE CONDITION OR THE NULL HYPOTHESIS ( $H_0$ ) AND DEFINE THE TRUE STATE FOR THE LESS SEVERE DECISION ERROR AS THE ALTERNATIVE HYPOTHESIS ( $H_a$ ).	<p><math>H_0</math>: The media represented by a sample of the specified area does not contain oil.</p> <p><math>H_a</math>: The media represented by a sample of the specified area contains oil.</p>
ASSIGN THE TERMS “FALSE POSITIVE” AND “FALSE NEGATIVE” TO THE PROPER DECISION ERRORS.	<ul style="list-style-type: none"> <li>False Positive Error = Type I</li> <li>False Negative Error = Type II</li> </ul>
ASSIGN PROBABILITY VALUES TO POINTS ABOVE AND BELOW THE ACTION LEVEL THAT REFLECT THE ACCEPTABLE PROBABILITY FOR THE OCCURRENCES OF DECISION ERRORS.	To be assigned based on discussions with EPA OSC.

**Data Quality Objective #1 – Soil, Sediment, Vegetation Sampling**  
**Oil Identification/Presence**  
**Lard Oil Company Oil Spill Site**  
**(Continued)**

STEP 7. OPTIMIZE THE DESIGN	
REVIEW THE DQOs	An optimal and sufficient number of samples, as determined by the EPA team, will be collected to determine the extent of contamination.
<p>DEVELOP GENERAL SAMPLING AND ANALYSIS DESIGN.</p> <p>It is estimated that approximately 15 to 20 multi-media samples will be collected from nearby flood- impacted residential and commercial properties downstream from the Lard Oil facility. The samples collected will be used to determine if additional activities are warranted. The samples will be analyzed for oil identification analysis by U.S. Coast Guard Marine Safety Laboratory.</p>	



**Data Quality Objective #2 – Soil, Sediment, Vegetation, Spill-Source Oil Liquids  
Sampling  
Comparative Oil Fingerprint Analysis  
Lard Oil Company Oil Spill Site**

<b>STEP 1. STATE THE PROBLEM</b>	
<p>Severe flooding resulted in an oil spill release from the Lard Oil Company that affected nearby residential homes and commercial businesses.</p> <p>Biased, grab, soil, sediment, and vegetation samples will be collected from nearby flood-impacted areas for comparative oil fingerprint analysis to compare results from multi-media (soil, sediment and vegetation) samples and Spill-source oil liquids and other samples collected from the Lard Oil facility.</p>	
<b>STEP 2. IDENTIFY THE DECISION</b>	
<p>Do the fingerprint analysis of oil-containing source samples collected from the Lard Oil facility and from multi-media samples collected from nearby flooded-impacted (downstream) locations match as determined by the U.S. Coast Guard Marine Safety Laboratory.</p>	
<p>IDENTIFY THE ALTERNATIVE ACTIONS THAT MAY BE TAKEN BASED ON THE DECISIONS.</p>	<ul style="list-style-type: none"> <li>• If a match is identified, the media represented by that sample will be considered contaminated by Lard Oil facility oil.</li> <li>• If a match is not identified, the EPA team will consider other possible sources for the contaminated media.</li> </ul>
<b>STEP 3. IDENTIFY INPUTS TO THE DECISION</b>	
<p>IDENTIFY THE INFORMATIONAL INPUTS NEEDED TO RESOLVE A DECISION.</p>	<ul style="list-style-type: none"> <li>• Match of oil fingerprints in multi-media samples collected from downstream locations and from the Lard Oil facility.</li> </ul>
<p>IDENTIFY THE SOURCES FOR EACH INFORMATIONAL INPUT AND LIST THE INPUTS THAT ARE OBTAINED THROUGH ENVIRONMENTAL MEASUREMENTS.</p>	<ul style="list-style-type: none"> <li>• Multi-media samples collected from most likely affected downstream locations and from the Lard Oil facility.</li> <li>• Comparative Oil Fingerprint Analysis by the U.S. Coast Guard Marine Safety Laboratory</li> </ul>
<p>BASIS FOR THE CONTAMINANT SPECIFIC ACTION LEVELS.</p>	<ul style="list-style-type: none"> <li>• Clean Water Act (CWA), 33 U.S.C. § 1321, ET SEQ, as amended by the Oil Pollution Act of 1990 (OPA 90).</li> <li>• Comparative Oil Fingerprint Analysis – U.S. Coast Guard Marine Safety Laboratory</li> </ul>
<p>IDENTIFY POTENTIAL SAMPLING TECHNIQUES AND APPROPRIATE ANALYTICAL METHODS.</p>	<ul style="list-style-type: none"> <li>• Soil sampling techniques are described in Section 3.2.1 of the QASP</li> <li>• Comparative Oil Fingerprint Analysis – U.S. Coast Guard Marine Safety Laboratory</li> </ul>

**Data Quality Objective #2 – Soil, Sediment, Vegetation, Spill-Source Oil Liquids  
Sampling  
Comparative Oil Fingerprint Analysis  
Lard Oil Company Oil Spill Site  
(Continued)**

<b>STEP 4. DEFINE THE BOUNDARIES OF THE STUDY</b>	
DEFINE THE DOMAIN OR GEOGRAPHIC AREA WITHIN WHICH ALL DECISIONS MUST APPLY.	The Lard Oil facility and residential and commercial properties that appear to have been affected by the Lard Oil Company oil spill.
SPECIFY THE CHARACTERISTICS THAT DEFINE THE POPULATION OF INTEREST.	Match of oil fingerprints in multi-media samples taken from the spill source and downstream areas.
DEFINE THE SCALE OF DECISION MAKING.	The scale of decision will be for soil, sediment or vegetation represented by each sample collected from the site or flood impacted area of concern.
DETERMINE THE TIME FRAME TO WHICH THE DATA APPLY.	The data will apply until the media represented by the sample receives appropriate response actions.
DETERMINE WHEN TO COLLECT DATA.	Samples will be collected as soon as possible to determine timely remedial actions, if any, for site closeout.
IDENTIFY PRACTICAL CONSTRAINTS ON DATA COLLECTION.	<ul style="list-style-type: none"> <li>• Inclement weather.</li> <li>• Access not attainable.</li> </ul>
<b>STEP 5. DEVELOP A DECISION RULE</b>	
SPECIFY THE PARAMETER THAT CHARACTERIZES THE POPULATION OF INTEREST.	Oil fingerprint match or no match as identified by Comparative Oil Fingerprint Analysis – U.S. Coast Guard Marine Safety Laboratory.
SPECIFY THE ACTION LEVEL FOR THE DECISION.	Identification of a fingerprint match.
DEVELOP A DECISION RULE.	If any downstream sample is identified as containing a matching oil fingerprint with a Lard Oil facility sample, then the media represented by that sample will be determined to have been contaminated by the Lard Oil facility; otherwise, other sources for contamination will be considered.

**Data Quality Objective #2 – Soil, Sediment, Vegetation, Spill-Source Oil Liquids  
Sampling  
Comparative Oil Fingerprint Analysis  
Lard Oil Company Oil Spill Site  
(Continued)**

<b>STEP 6. SPECIFY LIMITS ON DECISION ERRORS</b>	
DETERMINE THE POSSIBLE RANGE OF THE PARAMETER OF INTEREST.	The range is qualitative – presence or absence of a fingerprint match.
DEFINE BOTH TYPES OF DECISION ERRORS AND IDENTIFY THE POTENTIAL CONSEQUENCES OF EACH.	<p><u>Type I Error:</u> Deciding that a downstream sample does not match a Lard Oil facility sample when, in truth, the sample matches. The consequence of this decision error is that resources will be expended to consider other possible sources of the oil spill unnecessarily.</p> <p><u>Type II Error:</u> Deciding that a downstream sample matches a Lard Oil facility sample when, in truth, it does not. The consequences of this decision error are that other sources for the oil spill will not be considered. There may also be potential future liability associated with mis-identifying an RP. This decision error is more severe.</p>
ESTABLISH THE TRUE STATE OF NATURE FOR EACH DECISION RULE.	<p>The true state of nature when a downstream sample is decided to match a Lard Oil facility sample when in fact it does not, is that other potential responsible parties will not be identified.</p> <p>The true state of nature when a downstream sample is decided to not match a Lard Oil facility sample when in fact it does, is that resources will be expended to consider other possible sources of oil unnecessarily.</p>
DEFINE THE TRUE STATE OF NATURE FOR THE MORE SEVERE DECISION ERROR AS THE BASELINE CONDITION OR THE NULL HYPOTHESIS ( $H_0$ ) AND DEFINE THE TRUE STATE FOR THE LESS SEVERE DECISION ERROR AS THE ALTERNATIVE HYPOTHESIS ( $H_a$ ).	<p><math>H_0</math>: A downstream sample oil fingerprint does not match a Lard Oil facility sample oil fingerprint.</p> <p><math>H_a</math>: A downstream sample oil fingerprint matches a Lard Oil facility sample oil fingerprint.</p>
ASSIGN THE TERMS “FALSE POSITIVE” AND “FALSE NEGATIVE” TO THE PROPER DECISION ERRORS.	<ul style="list-style-type: none"> <li>False Positive Error = Type I</li> <li>False Negative Error = Type II</li> </ul>
ASSIGN PROBABILITY VALUES TO POINTS ABOVE AND BELOW THE ACTION LEVEL THAT REFLECT THE ACCEPTABLE PROBABILITY FOR THE OCCURRENCES OF DECISION ERRORS.	To be assigned based on discussions with EPA OSC.

**Data Quality Objective #2 – Soil, Sediment, Vegetation, Spill-Source Oil Liquids  
Sampling  
Comparative Oil Fingerprint Analysis  
Lard Oil Company Oil Spill Site  
(Continued)**

STEP 7. OPTIMIZE THE DESIGN	
REVIEW THE DQOs	An optimal and sufficient number of Lard Oil facility and downstream samples, as determined by the EPA team, will be collected to compare oil fingerprints.
<p>DEVELOP GENERAL SAMPLING AND ANALYSIS DESIGN.</p> <p>It is estimated that approximately 15 to 20 samples will be collected from nearby flood- impacted residential and commercial properties downstream from the Lard Oil facility. It is estimated that approximately 5 to 10 samples will be collected from the Lard Oil facility. The samples collected will be used to determine if additional activities are warranted. The samples will be analyzed for comparative oil fingerprint analysis by the U.S. Coast Guard Marine Safety Laboratory.</p>	

**Data Quality Objective #3 – Indoor Residential/Commercial Building Materials  
Wipe Sampling  
Lard Oil Company Oil Spill Site**

<b>STEP 1. STATE THE PROBLEM</b>	
<p>Severe flooding resulted in an oil spill release from the Lard Oil Company that affected nearby residential homes and commercial businesses. The objective is to determine if the nearby flood impacted homes and commercial businesses contain oil spill contamination as indicated by analytical results for total petroleum hydrocarbon (TPH) diesel range organics (DRO) and oil range organics (ORO) of wipe samples.</p> <p>The Responsible Party (RP) will collect indoor wipe samples from nearby residential/commercial building materials impacted by the flood. Wipe samples will be analyzed for TPH s (DRO &amp; ORO) constituents. The EPA Team will collect confirmation wipe samples from the same residential homes and commercial businesses to ensure data reliability and quality assurance.</p>	
<b>STEP 2. IDENTIFY THE DECISION</b>	
<p>Are RP indoor wipe sample results consistent with analytical results from EPA's split samples and are the data results above specified action levels?</p>	
<p>IDENTIFY THE ALTERNATIVE ACTIONS THAT MAY BE TAKEN BASED ON THE DECISIONS.</p>	<ul style="list-style-type: none"> <li>• If wipe sample results do not exceed action levels for the contaminants of concern (COCs) and the RP wipe sample results are reproducible (confirmed by EPA samples), no additional site remediation activities will be required.</li> <li>• If wipe sample results exceed action levels for the contaminants of concern (COCs) and/or the RP wipe sample results are not reproducible (not confirmed by EPA samples), additional site assessment and remediation options will be discussed with the EPA On-Scene Coordinator.</li> </ul>
<b>STEP 3. IDENTIFY INPUTS TO THE DECISION</b>	
<p>IDENTIFY THE INFORMATIONAL INPUTS NEEDED TO RESOLVE A DECISION.</p>	<ul style="list-style-type: none"> <li>• TPH concentrations found in wipe samples collected in residential homes and commercial businesses.</li> <li>• TPH concentrations reported in RP samples compared to EPA samples.</li> </ul>
<p>IDENTIFY THE SOURCES FOR EACH INFORMATIONAL INPUT AND LIST THE INPUTS THAT ARE OBTAINED THROUGH ENVIRONMENTAL MEASUREMENTS.</p>	<ul style="list-style-type: none"> <li>• Indoor wipe samples collected from most likely flood-affected downstream locations.</li> <li>• Total Petroleum Hydrocarbons – Diesel Range Organics (DRO) and Oil Range Organics (ORO) analysis (EPA Method 8015).</li> </ul>
<p>BASIS FOR THE CONTAMINANT SPECIFIC ACTION LEVELS.</p>	<ul style="list-style-type: none"> <li>• Louisiana Department of Environmental Quality (LDEQ), Risk Evaluation/Corrective Action Program (RECAP), October, 2003..).</li> </ul>
<p>IDENTIFY POTENTIAL SAMPLING TECHNIQUES AND APPROPRIATE ANALYTICAL METHODS.</p>	<ul style="list-style-type: none"> <li>• Soil sampling techniques are described in Section 3.2.2 of the QASP</li> <li>• EPA SW-846 Method 8015</li> </ul>

**Data Quality Objective #3 – Indoor Residential/Commercial Building Materials**  
**Wipe Sampling**  
**Lard Oil Company Oil Spill Site**  
**(Continued)**

<b>STEP 4. DEFINE THE BOUNDARIES OF THE STUDY</b>	
DEFINE THE DOMAIN OR GEOGRAPHIC AREA WITHIN WHICH ALL DECISIONS MUST APPLY.	The residential and commercial properties that appear to have been affected by the Lard Oil Company oil spill.
SPECIFY THE CHARACTERISTICS THAT DEFINE THE POPULATION OF INTEREST.	Concentrations of TPH (DRO, ORO) constituents in indoor wipe samples.
DEFINE THE SCALE OF DECISION MAKING.	The scale of decision will be for residential and commercial properties represented by each wipe sample collected from the site.
DETERMINE THE TIME FRAME TO WHICH THE DATA APPLY.	The data will apply until the media represented by the sample receives appropriate response actions.
DETERMINE WHEN TO COLLECT DATA.	Samples will be collected as soon as possible to determine timely remedial actions, if any, for site closeout.
IDENTIFY PRACTICAL CONSTRAINTS ON DATA COLLECTION.	<ul style="list-style-type: none"> <li>• Inclement weather.</li> <li>• Access not attainable.</li> </ul>
<b>STEP 5. DEVELOP A DECISION RULE</b>	
SPECIFY THE PARAMETER THAT CHARACTERIZES THE POPULATION OF INTEREST.	Concentrations of TPH-DRO,ORO constituents in indoor wipe samples.
SPECIFY THE ACTION LEVEL FOR THE DECISION.	<ul style="list-style-type: none"> <li>• Louisiana Department of Environmental Quality (LDEQ), Risk Evaluation/Corrective Action Program (RECAP), October, 2003.</li> <li>• The EPA OSC will determine a quantitative range to determine reproducibility of RP results</li> </ul>
DEVELOP A DECISION RULE.	If any result in a wipe sample is above a site specific action level or the RP wipe sample results are not confirmed by EPA sample data , additional actions will need to be discussed with the OSC.



**Data Quality Objective #3 – Indoor Residential/Commercial Building Materials**  
**Wipe Sampling**  
**Lard Oil Company Oil Spill Site**  
**(Continued)**

<b>STEP 6. SPECIFY LIMITS ON DECISION ERRORS</b>	
DETERMINE THE POSSIBLE RANGE OF THE PARAMETER OF INTEREST.	Contaminant concentrations may range from 0 milligrams per kilograms (mg/kg) to more than the LDEQ RECAP level for that contaminant.
DEFINE BOTH TYPES OF DECISION ERRORS AND IDENTIFY THE POTENTIAL CONSEQUENCES OF EACH.	<p><u>Type I Error:</u> Deciding that the specified area represented by the wipe sample does not exceed the specified action level or deciding that an RP sample result was reproducible when, in truth, the wipe sample concentration of the contaminant exceeds its specified action level and/or the sample results were not reproducible. The consequence of this decision error is that contaminated material may remain on-site, possibly endangering human health and the environment. There may also be potential future liability associated with cleanup costs of leaving contaminated soil on-site. This decision error is more severe.</p> <p><u>Type II Error:</u> Deciding that the specified area represented by the wipe sample does exceed the specified action level or deciding that an RP sample result was not reproducible when, in truth, the wipe sample concentration of the contaminant did not exceed its specified action level and/or the sample results were reproducible. The consequences of this decision error are that additional site activities or remediation of the specified area will continue and unnecessary costs will be incurred.</p>
ESTABLISH THE TRUE STATE OF NATURE FOR EACH DECISION RULE.	<p>The true state of nature when a wipe sample result exceeded specified action levels or an RP sample result was not reproducible when, in truth, the sample result did not exceed a specified action level and the RP samples results were reproducible is that resources will be expended unnecessarily to resample previously sampled areas.</p> <p>The true state of nature when a wipe sample result did not exceed specified action levels and or RP sample results were reproducible when, in truth, the sample result did exceed specified action levels and or the RP results were not reproducible is that remediation or no action of the specified area will not proceed in areas that may need additional site activities.</p>

**Data Quality Objective #3 – Indoor Residential/Commercial Building Materials  
Wipe Sampling  
Lard Oil Company Oil Spill Site  
(Continued)**

<b>STEP 6. SPECIFY LIMITS ON DECISION ERRORS (CONTINUED)</b>	
DEFINE THE TRUE STATE OF NATURE FOR THE MORE SEVERE DECISION ERROR AS THE BASELINE CONDITION OR THE NULL HYPOTHESIS ( $H_0$ ) AND DEFINE THE TRUE STATE FOR THE LESS SEVERE DECISION ERROR AS THE ALTERNATIVE HYPOTHESIS ( $H_a$ ).	<p><math>H_0</math>: An indoor wipe sample result exceed specified action levels or the RP data was not reproducible when split sampled by the EPA.</p> <p><math>H_a</math>: An indoor wipe sample result does not exceed specified action levels and the RP data is reproducible when split sampled by the EPA.</p>
ASSIGN THE TERMS “FALSE POSITIVE” AND “FALSE NEGATIVE” TO THE PROPER DECISION ERRORS.	<ul style="list-style-type: none"> <li>• False Positive Error = Type I</li> <li>• False Negative Error = Type II</li> </ul>
ASSIGN PROBABILITY VALUES TO POINTS ABOVE AND BELOW THE ACTION LEVEL THAT REFLECT THE ACCEPTABLE PROBABILITY FOR THE OCCURRENCES OF DECISION ERRORS.	To be assigned based on discussions with EPA OSC.
<b>STEP 7. OPTIMIZE THE DESIGN</b>	
REVIEW THE DQOs	An optimal and sufficient number of samples, as determined by the EPA team, will be split with the RP to ensure the quality assurance of RP sampling activities.
<p>DEVELOP GENERAL SAMPLING AND ANALYSIS DESIGN.</p> <p>The EPA team will collect approximately 5 to 10 split indoor wipe samples from nearby residential and commercial properties impacted by the flood and the Lard Oil facility. Sample location will be determined by field observations and in concurrence with the EPA OSC. The wipe sample data will be utilized to ensure data reliability of RP sample results and overall quality assurance. The samples will be analyzed for Total Petroleum Hydrocarbons – DRO and ORO via EPA SW-846 Method 8015. Sample results will be used to determine if additional activities are warranted.</p>	

## **APPENDIX B**

### **STANDARD OPERATING PROCEDURES**

<b>SOP</b>	<b>1001.01</b>				
<b>GROUP</b>	Sampling Procedures				
<b>SUB-GROUP</b>	Soil Sampling Procedures				
<b>TITLE</b>	Surface Soil Sampling				
<b>DATE</b>	11/19/2001	<b>FILE</b>	1001-01.DOC	<b>PAGE</b>	1 of 3

## INTRODUCTION

The following Standard Operating Procedure (SOP) is to describe the procedures for collecting representative soil samples. Analysis of soil samples may determine whether concentrations of specific soil pollutants exceed established action levels, or if the concentrations of soil pollutants present a risk to public health, welfare, or the environment. This SOP is similar to SOP Number 1001.03 for collecting near surface soil samples with a hand auger.

## PROCEDURE

Surface soil samples may be collected using a variety of methods and equipment. The methods and equipment used are dependent on the depth of the desired sample, the type of sample required (disturbed versus undisturbed), and the type of soil. Near-surface soils may be easily sampled using a spade, trowel, or hand scoop.

### Sample Preservation

Cooling to  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , supplemented by a minimal holding time, is suggested.

### Interferences and Potential Problems

There are two primary interferences or potential problems associated with soil sampling: cross-contamination of samples and improper sample collection. Cross-contamination problems can be eliminated or minimized through the use of dedicated (disposable) sampling equipment. If this is not possible or practical, then decontamination of sampling equipment is necessary. Improper sample collection can involve using contaminated equipment, disturbance of the matrix resulting in compaction of the sample, or inadequate homogenization of the samples where required, resulting in variable, non-representative results. Homogenization may also affect sample representativeness where the analytical requirements include volatile organic compounds.

### Equipment or Apparatus

The equipment used for sampling may be selected from the following list, as appropriate:

- Tape measure
- Survey stakes or flags
- Stainless steel, plastic, or other appropriate homogenization bucket or bowl
- Ziploc plastic bags
- Logbook
- Labels
- Chain-of-custody forms and seals
- Coolers
- Ice
- Decontamination supplies and equipment
- Canvas or plastic sheet
- Spatulas/spades/shovels
- Scoops

<b>SOP</b>	<b>1001.01</b>				
<b>GROUP</b>	Sampling Procedures				
<b>SUB-GROUP</b>	Soil Sampling Procedures				
<b>TITLE</b>	Surface Soil Sampling				
<b>DATE</b>	11/19/2001	<b>FILE</b>	1001-01.DOC	<b>PAGE</b>	2 of 3

- Plastic or stainless steel spoons
- Trowel

### Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and what equipment and supplies are required.
2. Obtain necessary sampling and monitoring equipment from the list above.
3. Prepare schedules, and coordinate with staff, client, and regulatory agencies, if appropriate.
4. Perform a general site survey prior to site entry in accordance with the site-specific health and safety plan.
5. Decontaminate or preclean equipment, and ensure that it is in working order.
6. Use stakes, buoys, or flagging to identify and mark all sampling locations. Consider specific site factors, including extent and nature of contaminant, when selecting sample locations. If required, the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions. All staked locations will be utility-cleared by the property owner or other responsible party prior to soil sampling.
7. Evaluate safety concerns associated with sampling that may require use of personal protective equipment and/or air monitoring.

### Surface Soil Sample Collection

Collect samples from the near-surface soil with tools such as spades, shovels, and scoops. Surface material can be removed to the required depth with this equipment, then a stainless steel or plastic scoop can be used to collect the sample. The use of a flat, pointed mason trowel to cut a block of the desired soil can be helpful when undisturbed profiles are required. A stainless steel scoop, lab spoon, or plastic spoon will suffice in most other applications. Avoid the use of devices plated with chrome or other target analyte materials.

The following procedures should be followed when collecting surface soil samples:

1. Carefully remove the top layer of soil or debris to the desired sample depth with a pre-cleaned spade.
2. Using a pre-cleaned, stainless steel scoop, plastic spoon, or trowel, remove and discard a thin layer of soil from the area which came in contact with the spade.
3. If volatile organic analysis is to be performed, transfer a portion of the sample directly into an appropriate, labeled sample container(s) with a stainless steel lab spoon, plastic lab spoon, or equivalent and secure the cap(s) tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into an appropriate, labeled container(s) and secure the cap(s) tightly; or if composite samples are to be collected, place a sample from another sampling interval into the

<b>SOP</b>	<b>1001.01</b>				
<b>GROUP</b>	Sampling Procedures				
<b>SUB-GROUP</b>	Soil Sampling Procedures				
<b>TITLE</b>	Surface Soil Sampling				
<b>DATE</b>	11/19/2001	<b>FILE</b>	1001-01.DOC	<b>PAGE</b>	3 of 3

homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled container(s) and secure the cap(s) tightly.

4. Fill hole created through sampling with unused material or other appropriate backfill material (sand).
5. Record applicable information into field log book or appropriate forms as documentation of sampling.



<b>SOP</b>	<b>1002.04</b>				
<b>GROUP</b>	Sampling Procedures				
<b>SUB-GROUP</b>	Soil Sampling Procedures				
<b>TITLE</b>	Sediment Sampling				
<b>DATE</b>	3/12/2010	<b>FILE</b>	1002-04.DOC	<b>PAGE</b>	1 of 3

## INTRODUCTION

The following Standard Operating Procedure (SOP) is to describe the procedures for collecting representative sediment samples using a trowel, piston corer, WILDCO KB Core Sampler, a Ponar Grab Sampler, or other similar equipment. Analysis of sediment samples may be performed to determine whether concentrations of specific sediment pollutants exceed established action levels, or if the concentrations of sediment pollutants present a risk to public health, welfare, or the environment.

## PROCEDURE

### Overview

Sediment samples may be collected using trowels, core and Ponar sampler, or a variety of similar methods and equipment. The methods and equipment used are dependent on the depth of the desired sample, the type of sample required (disturbed versus undisturbed), and the type of sediment (fines versus coarse). Sampling in shallow areas or streams near the surface may only require a hand trowel, while sampling at depth may be performed using a core or Ponar sampler.

### Sample Preservation

Refrigeration to  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , supplemented by a minimal holding time, is suggested.

### Interferences and Potential Problems

There are two primary interferences or potential problems associated with sediment sampling: cross-contamination of samples and improper sample collection. Cross-contamination problems can be eliminated or minimized through the use of dedicated (disposable) sampling equipment. If this is not possible or practical, then decontamination of sampling equipment is necessary. Improper sample collection can involve using contaminated equipment, disturbance of the matrix resulting in mixing of the sample, or inadequate homogenization of the samples where required, resulting in variable, non-representative results. Homogenization may also affect sample representativeness when the analytical requirements include volatile organic compounds.

### Equipment or Apparatus

The equipment selected for the sampling effort may include the following as appropriate:

- Tape measure
- Survey stakes or flags
- Stainless steel, plastic, or other appropriate homogenization bucket or bowl
- Ziploc plastic bags
- Logbook
- Labels
- Chain-of-custody forms and seals
- Coolers
- Ice

<b>SOP</b>	<b>1002.04</b>				
<b>GROUP</b>	Sampling Procedures				
<b>SUB-GROUP</b>	Soil Sampling Procedures				
<b>TITLE</b>	Sediment Sampling				
<b>DATE</b>	3/12/2010	<b>FILE</b>	1002-04.DOC	<b>PAGE</b>	2 of 3

- Decontamination supplies and equipment (i.e. brushes and buckets)
- Canvas or plastic sheeting
- Spatulas
- Scoops
- Plastic or stainless steel spoons
- Trowel
- Auger bucket
- Extension rods
- T-handle
- KB Core Sampler
- Ponar Grab Sampler
- Air monitor

#### Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and which equipment and supplies are required.
2. Obtain necessary sampling and monitoring equipment from the list above. Additional equipment may be added to this list as appropriate to perform other sampling.
3. Decontaminate or preclean equipment, and ensure that it is in working order.
4. Perform a general site survey prior to site entry in accordance with the site-specific health and safety plan.
5. Use stakes, buoys, or flagging to identify and mark all sampling locations. Consider specific site factors, including extent and nature of contaminant, when selecting sample locations. If required, the proposed locations may be adjusted based on site access, property boundaries, and obstructions.

#### Sediment Sampling in Shallow Waters

The following procedures should be used when collecting sediment samples in shallow waters:

1. Collect sediments as specified in the work plan or as determined during office preparation activities, using a stainless steel trowel, piston corer or similar device and a stainless steel, tempered glass or aluminum container.
2. Standing downstream of the sample stations, collect discrete sediment samples from each station and, if required in the work plan, composite in stainless steel, tempered glass or aluminum container.
3. Collect sediment samples of deposited material from the depth specified in the work plan or as determined during the office preparation activities. Record the depth in the logbook. Selective removal of the top sediment layers may be required and should be accomplished by carefully removing the sediments with a stainless steel trowel or scoop. In streams where water velocity is insufficient to disturb sediment fines during sediment sampling, a stainless

<b>SOP</b>	<b>1002.04</b>				
<b>GROUP</b>	Sampling Procedures				
<b>SUB-GROUP</b>	Soil Sampling Procedures				
<b>TITLE</b>	Sediment Sampling				
<b>DATE</b>	3/12/2010	<b>FILE</b>	1002-04.DOC	<b>PAGE</b>	3 of 3

steel trowel or scoop may be used for sampling. Where water velocities are high, a stainless steel corer will be utilized.

4. When applicable, composite discrete sediment samples by placing equal volumes of sediment material collected from the sample points into the container and mixing thoroughly to obtain a homogeneous mixture. Samples may be sieved or hand picked, if necessary, to remove larger materials, such as leaves, sticks, gravel, or rocks. Record in the logbook the nature of any materials removed from the sediment samples.
5. Place each sediment sample into the proper clean, unused sample container, as required by the work plan or laboratory. Sampling personnel must avoid placing sediment into the sample container and decanting off the excess liquid in analyzing for volatile organics and water soluble compounds in the sediment and reduces accurate representation of sediment analysis.
6. Fill out labels with waterproof ink and attach to the sample container.
7. Decontaminate sampling equipment between samples.

#### Sediment Sampling in Deep Waters

Procedures for sampling in deep waters are the same as for shallow waters except the sampling equipment is different. Soft, fine-grained sediments collected in deep waters will be sampled with a WILDCO KB Core Sampler or similar equipment. Coarse-grained sediments will be collected utilizing a Ponar Grab Sampler or similar equipment. Both samplers will be operated from a boat following appropriate safety procedures. Documentation, containerization, labeling and decontamination procedures are the same as for sediment samples collected in shallow waters.

#### Sediment Sampling in Drainage Ditches and Intermittent Streams

Procedures for sediment sampling in drainage ditches and the dry portions of intermittent streams are as specified for shallow water sediments.



# CHIP, WIPE, AND SWEEP SAMPLING

SOP#: 2011  
DATE: 11/16/94  
REV. #: 0.0

## 1.0 SCOPE AND APPLICATION

This standard operating procedure (SOP) outlines the recommended protocol and equipment for collection of representative chip, wipe, and sweep samples to monitor potential surficial contamination.

This method of sampling is appropriate for surfaces contaminated with non-volatile species of analytes (i.e., PCB, PCDD, PCDF, metals, cyanide, etc.) Detection limits are analyte specific. Sample size should be determined based upon the detection limit desired and the amount of sample requested by the analytical laboratory. Typical sample area is one square foot. However, based upon sampling location, the sample size may need modification due to area configuration.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent on site conditions, equipment limitations or limitations imposed by the procedure or other procedure limitations. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute U.S. EPA endorsement or recommendation for use.

## 2.0 METHOD SUMMARY

Since surface situations vary widely, no universal sampling method can be recommended. Rather, the method and implements used must be tailored to suit a specific sampling site. The sampling location should be selected based upon the potential for contamination as a result of manufacturing processes or personnel practices.

Chip sampling is appropriate for porous surfaces and is generally accomplished with either a hammer and chisel, or an electric hammer. The sampling device should be laboratory cleaned and wrapped in clean, autoclaved aluminum foil until ready for use. To

collect the sample, a measured and marked off area is chipped both horizontally and vertically to an even depth of 1/8 inch. The sample is then transferred to the proper sample container.

Wipe samples are collected from smooth surfaces to indicate surficial contamination; a sample location is measured and marked off. While wearing a new pair of surgical gloves, a sterile gauze pad is opened, and soaked with solvent. The solvent used is dependent on the surface being sampled. This pad is then stroked firmly over the sample surface, first vertically, then horizontally, to ensure complete coverage. The pad is then transferred to the sample container.

Sweep sampling is an effective method for the collection of dust or residue on porous or non-porous surfaces. To collect such a sample, an appropriate area is measured off. Then, while wearing a new pair of disposable surgical gloves, a dedicated brush is used to sweep material into a dedicated dust pan. The sample is then transferred to the proper sample container.

Samples collected by all three methods are then sent to the laboratory for analysis.

## 3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Samples should be stored out of direct sunlight to reduce photodegradation, cooled to 4°C and shipped to the laboratory performing the analysis. Appropriately sized laboratory cleaned, glass sample jars should be used for sample collection. The amount of sample required will be determined in concert with the analytical laboratory.

## 4.0 INTERFERENCES AND POTENTIAL PROBLEMS

This method has few significant interferences or problems. Typical problems result from rough porous

surfaces which may be difficult to wipe, chip, or sweep.

## 5.0 EQUIPMENT

Equipment required for performing chip, wipe, or sweep sampling is as follows:

- C Lab clean sample containers of proper size and composition
- C Site logbook
- C Sample analysis request forms
- C Chain of Custody records
- C Custody seals
- C Field data sheets
- C Sample labels
- C Disposable surgical gloves
- C Sterile wrapped gauze pad (3 in. x 3 in.)
- C Appropriate pesticide (HPLC) grade solvent
- C Medium sized laboratory cleaned paint brush
- C Medium sized laboratory cleaned chisel
- C Autoclaved aluminum foil
- C Camera
- C Hexane (pesticide/HPLC grade)
- C Iso-octane
- C Distilled/deionized water

## 6.0 REAGENTS

Reagents are not required for preservation of chip, wipe or sweep samples. However, reagents will be utilized for decontamination of sampling equipment.

## 7.0 PROCEDURES

### 7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and the types and amounts of equipment and supplies needed.
2. Obtain necessary sampling and monitoring equipment.
3. Decontaminate or preclean equipment, and ensure that it is in working order.
4. Prepare scheduling and coordinate with staff, clients, and regulatory agency, if appropriate.
5. Perform a general site survey prior to site entry in accordance with the site specific

Health and Safety Plan.

6. Mark all sampling locations. If required the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions.

### 7.2 Chip Sample Collection

Sampling of porous surfaces is generally accomplished by using a chisel and hammer or electric hammer. The sampling device should be laboratory cleaned or field decontaminated as per the Sampling Equipment Decontamination SOP. It is then wrapped in cleaned, autoclaved aluminum foil. The sampler should remain in this wrapping until it is needed. Each sampling device should be used for only one sample.

1. Choose appropriate sampling points; measure off the designated area. Photo documentation is optional.
2. Record surface area to be chipped.
3. Don a new pair of disposable surgical gloves.
4. Open a laboratory-cleaned chisel or equivalent sampling device.
5. Chip the sample area horizontally, then vertically to an even depth of approximately 1/8 inch.
6. Place the sample in an appropriately prepared sample container with a Teflon lined cap.
7. Cap the sample container, attach the label and custody seal, and place in a plastic bag. Record all pertinent data in the site logbook and on field data sheets. Complete the sampling analysis request form and chain of custody record before taking the next sample.
8. Store samples out of direct sunlight and cool to 4EC.
9. Follow proper decontamination procedures then deliver sample(s) to the laboratory for analysis.

### 7.3 Wipe Sample Collection

Wipe sampling is accomplished by using a sterile

gauze pad, adding a solvent in which the contaminant is most soluble, then wiping a pre-determined, pre-measured area. The sample is packaged in an amber jar to prevent photodegradation and packed in coolers for shipment to the lab. Each gauze pad is used for only one wipe sample.

1. Choose appropriate sampling points; measure off the designated area. Photo documentation is optional.
2. Record surface area to be wiped.
3. Don a new pair of disposable surgical gloves.
4. Open new sterile package of gauze pad.
5. Soak the pad with solvent of choice.
6. Wipe the marked surface area using firm strokes. Wipe vertically, then horizontally to insure complete surface coverage.
7. Place the gauze pad in an appropriately prepared sample container with a Teflon-lined cap.
8. Cap the sample container, attach the label and custody seal, and place in a plastic bag. Record all pertinent data in the site logbook and on field data sheets. Complete the sampling analysis request form and chain of custody record before taking the next sample.
9. Store samples out of direct sunlight and cool to 4°C.
10. Follow proper decontamination procedures, then deliver sample(s) to the laboratory for analysis.

#### **7.4 Sweep Sample Collection**

Sweep sampling is appropriate for bulk contamination. This procedure utilizes a dedicated, hand held sweeper brush to acquire a sample from a pre-measured area.

1. Choose appropriate sampling points; measure off the designated area. Photo documentation is optional.
2. Record the surface area to be swept.

3. Don new pair of disposable surgical gloves.
4. Sweep the measured area using a dedicated brush; collect the sample in a dedicated dust pan.
5. Transfer sample from dust pan to sample container.
6. Cap the sample container, attach the label and custody seal, and place in a plastic bag. Record all pertinent data in the site log book and on field data sheets. Complete the sampling analysis request form and chain of custody record before taking the next sample.
7. Store samples out of direct sunlight and cool to 4EC.
8. Leave contaminated sampling device in the sample material, unless decontamination is practical.
9. Follow proper decontamination procedures, then deliver sample(s) to the laboratory for analysis.

### **8.0 CALCULATIONS**

Results are usually provided in mg/g, µg/g, mass per unit area, or other appropriate measurement. Calculations are typically done by the laboratory.

### **9.0 QUALITY ASSURANCE/ QUALITY CONTROL**

The following general quality assurance procedures apply:

1. All data must be documented on standard chain of custody forms, field data sheets or within the site logbook.
2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation, and they must be documented.

The following specific quality assurance activities apply to wipe samples:



For wipe samples, a blank should be collected for each sampling event. This consists of a sterile gauze pad, wet with the appropriate solvent, and placed in a prepared sample container. The blank will help identify potential introduction of contaminants via the sampling methods, the pad, solvent or sample container. Spiked wipe samples can also be collected to better assess the data being generated. These are prepared by spiking a piece of foil of known area with a standard of the analyte of choice. The solvent containing the standard is allowed to evaporate, and the foil is wiped in a manner identical to the other wipe samples.

Specific quality assurance activities for chip and sweep samples should be determined on a site specific basis.

## **10.0 DATA VALIDATION**

A review of the quality control samples will be conducted and the data utilized to qualify the environmental results.

## **11.0 HEALTH AND SAFETY**

When working with potentially hazardous materials, follow EPA, OSHA and corporate health and safety procedures.

## **12.0 REFERENCES**

U.S. EPA, A Compendium of Superfund Field Operation Methods. EPA/540/5-87/001.

NJDEP Field Sampling Procedures Manual, February, 1988.

<b>SOP</b>	<b>1101.01</b>				
<b>GROUP</b>	Sampling Handling				
<b>SUB-GROUP</b>	Sample Custody				
<b>TITLE</b>	Sample Custody in the Field				
<b>DATE</b>	<b>11/19/2001</b>	<b>FILE</b>	1101-01.DOC	<b>PAGE</b>	1 of 4

## INTRODUCTION

The following Standard Operating Procedure (SOP) presents procedures for maintaining sample chain of custody (COC) during activities where samples are collected.

## PROCEDURE

Sample custody is defined as being under a person's custody if any of the following conditions exist:

- it is in their possession,
- it is in their view, after being in their possession,
- it was in their possession and they locked it up, or
- it is in a designated secure area.

A designated field sampler will be personally responsible for the care and custody of collected samples until they are transferred to another person or properly dispatched to the laboratory. To the extent practicable, as few people as possible will handle the samples.

Sample tags or labels will be completed and applied to the container of each sample. When the tags or labels are being completed, waterproof ink will be used. If waterproof ink is not used, the tags or labels will be covered by transparent waterproof tape. Sample containers may also be placed in Ziploc-type storage bags to help keep them clean in the cooler. Information typically included on the sample tags or labels will include the following:

- Project Code
- Station Number and Location
- Sample Identification Number
- Date and Time of Sample Collection
- Type of Laboratory Analysis Required
- Preservation Required, if applicable
- Collector's Signature
- Priority (optional)
- Other Remarks

Additional information may include:

- Anticipated Range of Results (Low, Medium, or High)
- Sample Analysis Priority

<b>SOP</b>	<b>1101.01</b>				
<b>GROUP</b>	Sampling Handling				
<b>SUB-GROUP</b>	Sample Custody				
<b>TITLE</b>	Sample Custody in the Field				
<b>DATE</b>	<b>11/19/2001</b>	<b>FILE</b>	1101-01.DOC	<b>PAGE</b>	2 of 4

A COC form will be completed each time a sample or group of samples is prepared for transfer to the laboratory. The form will repeat the information on each of the sample labels and will serve as documentation of handling during shipment. The minimum information requirements of the COC form are listed in Table 1101.01-A. An example COC form is shown in Figure 1101.01-A. The completed COC must be reviewed by the Field Team Leader or Site Manager prior to sample shipment. The COC form will remain each sample shipping container at all times, and another copy will be retained by the member of the sampling team who originally relinquished the samples or in a project file.

<b>SOP</b>	<b>1101.01</b>				
<b>GROUP</b>	Sampling Handling				
<b>SUB-GROUP</b>	Sample Custody				
<b>TITLE</b>	Sample Custody in the Field				
<b>DATE</b>	<b>11/19/2001</b>	<b>FILE</b>	1101-01.DOC	<b>PAGE</b>	3 of 4

**TABLE 1101.01-A CHAIN OF CUSTODY FORM**

<b>INFORMATION</b>	<b>COMPLETED BY</b>	<b>DESCRIPTION</b>
<b>COC</b>	Laboratory	enter a unique number for each chain of custody form
<b>SHIP TO</b>	Field Team	enter the laboratory name and address
<b>CARRIER</b>	Field Team	enter the name of the transporter (e.g., FedEx) or handcarried
<b>AIRBILL</b>	Field Team	enter the airbill number or transporter tracking number (if applicable)
<b>PROJECT NAME</b>	Field Team	enter the project name
<b>SAMPLER NAME</b>	Field Team	enter the name of the person collecting the samples
<b>SAMPLER SIGNATURE</b>	Field Team	signature of the person collecting the samples
<b>SEND RESULTS TO</b>	Field Team	enter the name and address of the prime contractor
<b>FIELD SAMPLE ID</b>	Field Team	enter the unique identifying number given to the field sample (includes MS, MSD, field duplicate and field blanks)
<b>DATE</b>	Field Team	enter the year and date the sample was collected in the format M/D (e.g., 6/3)
<b>TIME</b>	Field Team	enter the time the sample was collected in 24 hour format (e.g., 0900)
<b>MATRIX</b>	Field Team	enter the sample matrix (e.g., water, soil)
<b>PRESERVATIVE</b>	Field Team	enter the preservative used (e.g., HNO3) or "none"
<b>FILTERED/ UNFILTERED</b>	Field Team	enter "F" if the sample was filtered or "U" if the sample was not filtered
<b>CONTAINERS</b>	Field Team	enter the number of containers associated with the sample
<b>MS/MSD</b>	Field Team or Laboratory	enter "X" if the sample is designated for the MS/MSD
<b>ANALYSES REQUESTED</b>	Field Team	enter the method name of the analysis requested (e.g., SW6010A)
<b>COMMENTS</b>	Field Team	enter comments
<b>SAMPLE CONDITION UPON RECEIPT AT LABORATORY</b>	Laboratory	enter any problems with the condition of any sample(s)
<b>COOLER TEMPERATURE</b>	Laboratory	enter the internal temperature of the cooler, in degrees C, upon opening
<b>SPECIAL INSTRUCTIONS/COMMENTS</b>	Laboratory	enter any special instructions or comments
<b>RELEASED BY (SIG)</b>	Field Team and Laboratory	enter the signature of the person releasing custody of the samples
<b>COMPANY NAME</b>	Field Team and Laboratory	enter the company name employing the person releasing/receiving custody
<b>RECEIVED BY (SIG)</b>	Field Team and Laboratory	enter the signature of the person receiving custody of the samples
<b>DATE</b>	Field Team and Laboratory	enter the date in the format M/D/YY (e.g., 6/3/96) when the samples were released/received
<b>TIME</b>	Field Team and Laboratory	enter the date in 24 hour format (e.g., 0900) when the samples were released/received

<b>SOP</b>	<b>1101.01</b>				
<b>GROUP</b>	Sampling Handling				
<b>SUB-GROUP</b>	Sample Custody				
<b>TITLE</b>	Sample Custody in the Field				
<b>DATE</b>	<b>11/19/2001</b>	<b>FILE</b>	1101-01.DOC	<b>PAGE</b>	4 of 4

**FIGURE 1101.01-A CHAIN OF CUSTODY FORM**

<b>SOP</b>	<b>1102.01</b>				
<b>GROUP</b>	Sample Handling				
<b>SUB-GROUP</b>	Sample Shipping				
<b>TITLE</b>	Sample Shipping				
<b>DATE</b>	11/19/2001	<b>FILE</b>	1102-01.DOC	<b>PAGE</b>	1 of 1

## INTRODUCTION

The following Standard Operating Procedure (SOP) presents the procedures for sample shipping that will be implemented during field work involving sampling activities.

## TERMS

COC - Chain-of-Custody

## PROCEDURE

Prior to shipping or transferring custody of samples, they will be packed according to D.O.T. requirements with sufficient ice to maintain an internal temperature of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$  during transport to the laboratory. Samples relinquished to the participating laboratories will be subject to the following procedures for transfer of custody and shipment:

1. Samples will be accompanied by a COC record. When transferring possession of samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of the sample transfer on the record. If sent by common carrier, a bill of lading or airbill should be used. Bill of lading and airbill receipts will be retained in the project file as part of the permanent documentation of sample shipping and transfer. This custody record documents transfer of sample custody from the sampler to another person or to the laboratory. The designated laboratory will accept custody in the field upon sample pick-up or at the laboratory if the samples are delivered via field personnel or a courier service.
2. Samples will be properly packed in approved shipping containers for laboratory pick-up by the appropriate laboratory for analysis, with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be padlocked or custody-sealed for transfer to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape that is wrapped around the package at least twice. The custody seal will then be folded over and stuck to itself so that the only access to the package is by cutting the filament tape or breaking the seal to unwrap the tape. The seal will then be signed. The designated laboratory will accept custody of the samples upon receipt.
3. Whenever samples are split with state representatives or other parties, the COC record will be marked to indicate with whom the samples were split.
4. The field sampler will call the designated laboratory to inform them of sample shipment and verify sample receipt as necessary.



<b>SOP</b>	<b>1201.01</b>				
<b>GROUP</b>	Decontamination				
<b>SUB-GROUP</b>	Sampling Equipment Decontamination				
<b>TITLE</b>	Sampling Equipment Decontamination				
<b>DATE</b>	11/19/2001	<b>FILE</b>	1201-01.DOC	<b>PAGE</b>	1 of 3

## INTRODUCTION

The following Standard Operating Procedure (SOP) presents the methods used for minimizing the potential for cross-contamination, and provides general guidelines for sampling equipment decontamination procedures.

## PROCEDURE

As part of the Health and Safety Plan (HASP), develop and set up a decontamination plan before any personnel or equipment enter the areas of potential exposure. The decontamination plan should include the following:

- The number, location, and layout of decontamination stations
- Which decontamination apparatus is needed
- The appropriate decontamination methods
- Methods for disposal of contaminated clothing, apparatus, and solutions

### Decontamination Methods

Personnel, samples, and equipment leaving the contaminated area of a site will be decontaminated. Various decontamination methods will be used to either physically remove contaminants, inactivate contaminants by disinfection or sterilization, or both. The physical decontamination techniques appropriate for equipment decontamination can be grouped into two categories: abrasive methods and non-abrasive methods.

#### *Abrasive Cleaning Methods*

Abrasive cleaning methods work by rubbing/scrubbing the surface containing the contaminant. This method includes mechanical and wet blasting methods.

Mechanical cleaning methods use brushes of metal or nylon. The amount and type of contaminants removed will vary with the hardness of bristles, length of brushing time, and degree of brush contact.

Cleaning can also be accomplished by water blasting which is also referred to as steam cleaning and pressure washing. Pressure washing utilizes high-pressure that is sprayed from a nozzle onto sampling equipment to physically remove soil or (potentially) contaminated material. Steam cleaning is a modification of pressure washing where the water is heated to temperatures approaching 100°C to assist in removing organic constituents from equipment.

<b>SOP</b>	<b>1201.01</b>				
<b>GROUP</b>	Decontamination				
<b>SUB-GROUP</b>	Sampling Equipment Decontamination				
<b>TITLE</b>	Sampling Equipment Decontamination				
<b>DATE</b>	11/19/2001	<b>FILE</b>	1201-01.DOC	<b>PAGE</b>	2 of 3

### *Disinfection/Rinse Methods*

Disinfectants are a practical means of inactivating chemicals or contaminants of concern. Standard sterilization methods involve heating the equipment which is impractical for large equipment. Rinsing removes contaminants through dilution, physical attraction, and solubilization.

The use of distilled/deionized water commonly available from commercial vendors may be acceptable for decontamination of sampling equipment provided that it has been verified by laboratory analysis to be target analyte free. Tap water may be used from any municipal water treatment system for mixing of decontamination solutions. An untreated potable water supply is not an acceptable substitute for tap water. Acids and solvents are occasionally utilized in decontamination of equipment to remove metals and organics, respectively, from sampling equipment. Other than ethanol, these are avoided when possible due to the safety, disposal, and transportation concerns associated with them.

Equipment or apparatuses that may be selected for use include the following:

- Personal protective clothing
- Non-phosphate detergent
- Selected solvents for removal of polar and nonpolar organics (ethanol, methanol, hexane)
- Acid washes for removal of metals (nitric acid)
- Long-handled brushes
- Drop cloths or plastic sheeting
- Paper towels
- Galvanized tubs or buckets
- Distilled, deionized, or tap water (as required by the project)
- Storage containers for spent wash solutions
- Sprayers (pressurized and non-pressurized)
- Trash bags
- Safety glasses or splash shield

### Field Sampling Equipment Cleaning Procedures

The following procedures should be followed:

1. Where applicable, follow physical removal procedures previously described (pressure wash, scrub wash)
2. Wash equipment with a non-phosphate detergent solution
3. Rinse with tap water
4. Rinse with distilled or deionized water
5. Rinse with 10% nitric acid if the sample will be analyzed for metals/organics
6. Rinse with distilled or deionized water
7. Use a solvent rinse (pesticide grade) if the sample will be analyzed for organics
8. Air dry the equipment completely
9. Rinse again with distilled or deionized water

<b>SOP</b>	<b>1201.01</b>				
<b>GROUP</b>	Decontamination				
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<b>TITLE</b>	Sampling Equipment Decontamination				
<b>DATE</b>	11/19/2001	<b>FILE</b>	1201-01.DOC	<b>PAGE</b>	3 of 3

10. Place in clean bag or container for storage/transport to subsequent sampling locations.

Selection of the solvent for use in the decontamination process is based on the contaminants present at the site. Solvent rinses are not necessarily required when organics are not a contaminant of concern and may be eliminated from the sequence specified below. Similarly, an acid rinse is not required if the analyses do not include inorganics. Use of a solvent is required when organic contamination is present on-site. Typical solvents used for removal of organic contaminants include acetone, ethanol, hexane, methanol, or water. An acid rinse step is required if metals are present on-site. If a particular contaminant fraction is not present at the site, the ten-step decontamination procedure listed above may be modified for site specificity.

Sampling equipment that requires the use of plastic tubing should be disassembled and the tubing replaced with clean tubing before commencement of sampling and between sampling locations. Plastic tubing should not be reused.

<b>SOP</b>	<b>0110.04</b>				
<b>GROUP</b>	Database Management System				
<b>SUB-GROUP</b>	Data Collection and Acquisition				
<b>TITLE</b>	On-Site Sample Nomenclature - On-Site Sampling Activities				
<b>DATE</b>	<b>07/04/2001</b>	<b>FILE</b>	0110-04.DOC	<b>PAGE</b>	1 of 1

## INTRODUCTION

The following Standard Operating Procedure (SOP) presents the remediation sample nomenclature for analytical samples. The sample nomenclature is based upon specific code requirements for compatibility with the WESTON On-Line system

## PROCEDURE

### Sampling Stations.

Station Type	Template
Soil Stockpile	SS##
Monitoring Well	MW##
Surface Water Pond	POND##
Air Sampler	AIR##

### Sample Nomenclature.

Sample Type	Template	Example
Soil Composite Sample	Stockpile - Type - QC - Sequence	SS01-CO-N-1
Surface Water Sample	Surface Water Pond-Type-QC-Sequence	POND03-CO-N-1
Groundwater Sample	Monitoring Well-Type-QC-Sequence	MW12-CO-N-1
Ambient Air Sample	Air Sampler-Sample Type-QC Type-Sequence	AIR01-TI-N-1

Note: Sequence is a numeric counter to make Sample ID unique if more than one sample is collected.

### Sample Types.

Sample Type Description	Code
Composite	CO
Grab	G
Product – DNAPL	PD
Product – LNAPL	PL
Split	SP
Time Integrated	TI

### QA/QC Types.

QA/QC Type Description	Code
Normal	N
Duplicate	D
Field Blank	FB
Rinse Blank	RB
Trip Blank	TB

<b>SOP</b>	<b>0110.04</b>				
<b>GROUP</b>	Database Management System				
<b>SUB-GROUP</b>	Data Collection and Acquisition				
<b>TITLE</b>	On-Site Sample Nomenclature - On-Site Sampling Activities				
<b>DATE</b>	9/1/2011	<b>FILE</b>	0110-04.doc	<b>PAGE</b>	1 of 1

## INTRODUCTION

The following Standard Operating Procedure (SOP) presents the remediation sample nomenclature for analytical samples. The sample nomenclature is based upon specific code requirements for compatibility with the WESTON On-Line system

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QA/QC Type Description	Code
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<b>SOP</b>	<b>1101.01</b>				
<b>GROUP</b>	Sampling Handling				
<b>SUB-GROUP</b>	Sample Custody				
<b>TITLE</b>	Sample Custody in the Field				
<b>DATE</b>	<b>9/1/2011</b>	<b>FILE</b>	1101-01.doc	<b>PAGE</b>	2 of 4

A COC form will be completed each time a sample or group of samples is prepared for transfer to the laboratory. The form will repeat the information on each of the sample labels and will serve as documentation of handling during shipment. The minimum information requirements of the COC form are listed in Table 1101.01-A. An example COC form is shown in Figure 1101.01-A. The completed COC must be reviewed by the Field Team Leader or Site Manager prior to sample shipment. The COC form will remain each sample shipping container at all times, and another copy will be retained by the member of the sampling team who originally relinquished the samples or in a project file.



<b>SOP</b>	<b>1101.01</b>				
<b>GROUP</b>	Sampling Handling				
<b>SUB-GROUP</b>	Sample Custody				
<b>TITLE</b>	Sample Custody in the Field				
<b>DATE</b>	<b>9/1/2011</b>	<b>FILE</b>	1101-01.doc	<b>PAGE</b>	3 of 4

**TABLE 1101.01-A CHAIN OF CUSTODY FORM**

<b>INFORMATION</b>	<b>COMPLETED BY</b>	<b>DESCRIPTION</b>
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<b>CARRIER</b>	Field Team	enter the name of the transporter (e.g., FedEx) or handcarried
<b>AIRBILL</b>	Field Team	enter the airbill number or transporter tracking number (if applicable)
<b>PROJECT NAME</b>	Field Team	enter the project name
<b>SAMPLER NAME</b>	Field Team	enter the name of the person collecting the samples
<b>SAMPLER SIGNATURE</b>	Field Team	signature of the person collecting the samples
<b>SEND RESULTS TO</b>	Field Team	enter the name and address of the prime contractor
<b>FIELD SAMPLE ID</b>	Field Team	enter the unique identifying number given to the field sample (includes MS, MSD, field duplicate and field blanks)
<b>DATE</b>	Field Team	enter the year and date the sample was collected in the format M/D (e.g., 6/3)
<b>TIME</b>	Field Team	enter the time the sample was collected in 24 hour format (e.g., 0900)
<b>MATRIX</b>	Field Team	enter the sample matrix (e.g., water, soil)
<b>PRESERVATIVE</b>	Field Team	enter the preservative used (e.g., HNO3) or "none"
<b>FILTERED/ UNFILTERED</b>	Field Team	enter "F" if the sample was filtered or "U" if the sample was not filtered
<b>CONTAINERS</b>	Field Team	enter the number of containers associated with the sample
<b>MS/MSD</b>	Field Team or Laboratory	enter "X" if the sample is designated for the MS/MSD
<b>ANALYSES REQUESTED</b>	Field Team	enter the method name of the analysis requested (e.g., SW6010A)
<b>COMMENTS</b>	Field Team	enter comments
<b>SAMPLE CONDITION UPON RECEIPT AT LABORATORY</b>	Laboratory	enter any problems with the condition of any sample(s)
<b>COOLER TEMPERATURE</b>	Laboratory	enter the internal temperature of the cooler, in degrees C, upon opening
<b>SPECIAL INSTRUCTIONS/COMMENTS</b>	Laboratory	enter any special instructions or comments
<b>RELEASED BY (SIG)</b>	Field Team and Laboratory	enter the signature of the person releasing custody of the samples
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<b>SOP</b>	<b>1101.01</b>				
<b>GROUP</b>	Sampling Handling				
<b>SUB-GROUP</b>	Sample Custody				
<b>TITLE</b>	Sample Custody in the Field				
<b>DATE</b>	<b>9/1/2011</b>	<b>FILE</b>	1101-01.doc	<b>PAGE</b>	4 of 4

**FIGURE 1101.01-A CHAIN OF CUSTODY FORM**

<b>SOP</b>	<b>1102.01</b>				
<b>GROUP</b>	Sample Handling				
<b>SUB-GROUP</b>	Sample Shipping				
<b>TITLE</b>	Sample Shipping				
<b>DATE</b>	9/1/2011	<b>FILE</b>	1102-01.DOC	<b>PAGE</b>	1 of 1

## INTRODUCTION

The following Standard Operating Procedure (SOP) presents the procedures for sample shipping that will be implemented during field work involving sampling activities.

## TERMS

COC - Chain-of-Custody

## PROCEDURE

Prior to shipping or transferring custody of samples, they will be packed according to D.O.T. requirements with sufficient ice to maintain an internal temperature of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$  during transport to the laboratory. Samples relinquished to the participating laboratories will be subject to the following procedures for transfer of custody and shipment:

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2. Samples will be properly packed in approved shipping containers for laboratory pick-up by the appropriate laboratory for analysis, with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be padlocked or custody-sealed for transfer to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape that is wrapped around the package at least twice. The custody seal will then be folded over and stuck to itself so that the only access to the package is by cutting the filament tape or breaking the seal to unwrap the tape. The seal will then be signed. The designated laboratory will accept custody of the samples upon receipt.
3. Whenever samples are split with state representatives or other parties, the COC record will be marked to indicate with whom the samples were split.
4. The field sampler will call the designated laboratory to inform them of sample shipment and verify sample receipt as necessary.

<b>SOP</b>	<b>1201.01</b>				
<b>GROUP</b>	Decontamination				
<b>SUB-GROUP</b>	Sampling Equipment Decontamination				
<b>TITLE</b>	Sampling Equipment Decontamination				
<b>DATE</b>	9/1/2011	<b>FILE</b>	1201-01.DOC	<b>PAGE</b>	1 of 3

## INTRODUCTION

The following Standard Operating Procedure (SOP) presents the methods used for minimizing the potential for cross-contamination, and provides general guidelines for sampling equipment decontamination procedures.

## PROCEDURE

As part of the Health and Safety Plan (HASP), develop and set up a decontamination plan before any personnel or equipment enter the areas of potential exposure. The decontamination plan should include the following:

- The number, location, and layout of decontamination stations
- Which decontamination apparatus is needed
- The appropriate decontamination methods
- Methods for disposal of contaminated clothing, apparatus, and solutions

### Decontamination Methods

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Abrasive cleaning methods work by rubbing/scrubbing the surface containing the contaminant. This method includes mechanical and wet blasting methods.

Mechanical cleaning methods use brushes of metal or nylon. The amount and type of contaminants removed will vary with the hardness of bristles, length of brushing time, and degree of brush contact.

Cleaning can also be accomplished by water blasting which is also referred to as steam cleaning and pressure washing. Pressure washing utilizes high-pressure that is sprayed from a nozzle onto sampling equipment to physically remove soil or (potentially) contaminated material. Steam cleaning is a modification of pressure washing where the water is heated to temperatures approaching 100°C to assist in removing organic constituents from equipment.

<b>SOP</b>	<b>1201.01</b>				
<b>GROUP</b>	Decontamination				
<b>SUB-GROUP</b>	Sampling Equipment Decontamination				
<b>TITLE</b>	Sampling Equipment Decontamination				
<b>DATE</b>	9/1/2011	<b>FILE</b>	1201-01.DOC	<b>PAGE</b>	2 of 3

### *Disinfection/Rinse Methods*

Disinfectants are a practical means of inactivating chemicals or contaminants of concern. Standard sterilization methods involve heating the equipment which is impractical for large equipment. Rinsing removes contaminants through dilution, physical attraction, and solubilization.

The use of distilled/deionized water commonly available from commercial vendors may be acceptable for decontamination of sampling equipment provided that it has been verified by laboratory analysis to be target analyte free. Tap water may be used from any municipal water treatment system for mixing of decontamination solutions. An untreated potable water supply is not an acceptable substitute for tap water. Acids and solvents are occasionally utilized in decontamination of equipment to remove metals and organics, respectively, from sampling equipment. Other than ethanol, these are avoided when possible due to the safety, disposal, and transportation concerns associated with them.

Equipment or apparatuses that may be selected for use include the following:

- Personal protective clothing
- Non-phosphate detergent
- Selected solvents for removal of polar and nonpolar organics (ethanol, methanol, hexane)
- Acid washes for removal of metals (nitric acid)
- Long-handled brushes
- Drop cloths or plastic sheeting
- Paper towels
- Galvanized tubs or buckets
- Distilled, deionized, or tap water (as required by the project)
- Storage containers for spent wash solutions
- Sprayers (pressurized and non-pressurized)
- Trash bags
- Safety glasses or splash shield

### Field Sampling Equipment Cleaning Procedures

The following procedures should be followed:

1. Where applicable, follow physical removal procedures previously described (pressure wash, scrub wash)
2. Wash equipment with a non-phosphate detergent solution
3. Rinse with tap water
4. Rinse with distilled or deionized water
5. Rinse with 10% nitric acid if the sample will be analyzed for metals/organics
6. Rinse with distilled or deionized water
7. Use a solvent rinse (pesticide grade) if the sample will be analyzed for organics
8. Air dry the equipment completely
9. Rinse again with distilled or deionized water

<b>SOP</b>	<b>1201.01</b>				
<b>GROUP</b>	Decontamination				
<b>SUB-GROUP</b>	Sampling Equipment Decontamination				
<b>TITLE</b>	Sampling Equipment Decontamination				
<b>DATE</b>	9/1/2011	<b>FILE</b>	1201-01.DOC	<b>PAGE</b>	3 of 3

10. Place in clean bag or container for storage/transport to subsequent sampling locations.

Selection of the solvent for use in the decontamination process is based on the contaminants present at the site. Solvent rinses are not necessarily required when organics are not a contaminant of concern and may be eliminated from the sequence specified below. Similarly, an acid rinse is not required if the analyses do not include inorganics. Use of a solvent is required when organic contamination is present on-site. Typical solvents used for removal of organic contaminants include acetone, ethanol, hexane, methanol, or water. An acid rinse step is required if metals are present on-site. If a particular contaminant fraction is not present at the site, the ten-step decontamination procedure listed above may be modified for site specificity.

Sampling equipment that requires the use of plastic tubing should be disassembled and the tubing replaced with clean tubing before commencement of sampling and between sampling locations. Plastic tubing should not be reused.

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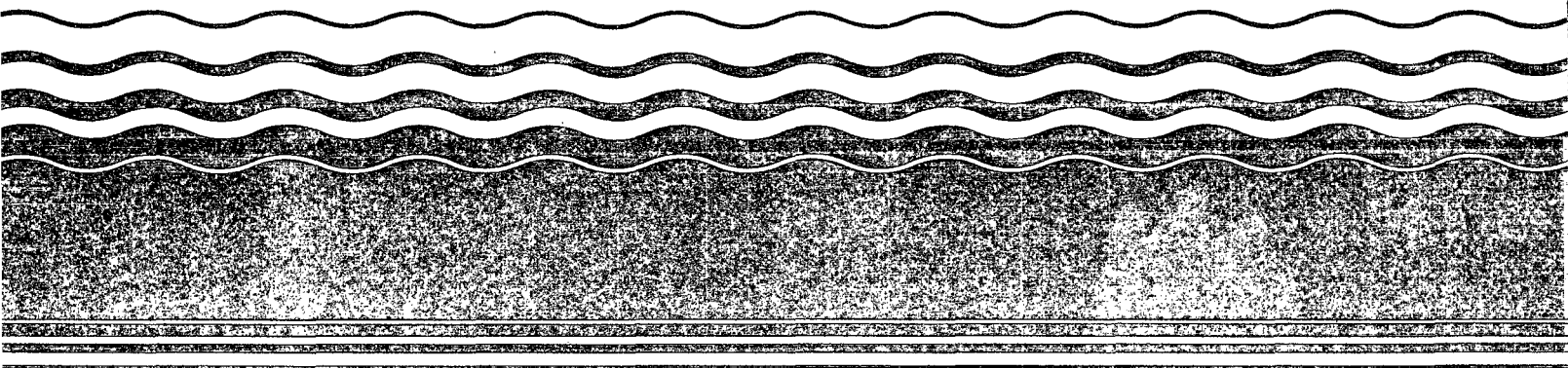
Office of Solid Waste and  
Emergency Response  
Washington DC 20460

EPA/540/P-91/006  
January 1991

9360.4-02



# Compendium of ERT Soil Sampling and Surface Geophysics Procedures





# **COMPENDIUM OF ERT SOIL SAMPLING AND SURFACE GEOPHYSICS PROCEDURES**

Sampling Equipment Decontamination

Soil Sampling

Soil Gas Sampling

General Surface Geophysics

Interim Final

Environmental Response Team  
Emergency Response Division

Office of Emergency and Remedial Response  
U.S. Environmental Protection Agency  
Washington, DC 20460



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## Notice

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Depending on circumstances and needs, it may not be possible or appropriate to follow these procedures exactly in all situations due to site conditions, equipment limitations, and limitations of the standard procedures. Whenever these procedures cannot be followed as written, they may be used as general guidance with any and all modifications fully documented in either QA Plans, Sampling Plans, or final reports of results.

Each Standard Operating Procedure in this compendium contains a discussion on quality assurance/quality control (QA/QC). For more information on QA/QC objectives and requirements, refer to the *Quality Assurance/Quality Control Guidance for Removal Activities*, OSWER directive 9360.4-01, EPA/540/G-90/004.

Questions, comments, and recommendations are welcomed regarding the Compendium of ERT Soil Sampling and Surface Geophysics Procedures. Send remarks to:

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## Table of Contents

<u>Section</u>	<u>Page</u>
1.0 SAMPLING EQUIPMENT DECONTAMINATION: SOP #2006	
1.1 Scope and Application	1
1.2 Method Summary	1
1.3 Sample Preservation, Containers, Handling, and Storage	1
1.4 Interferences and Potential Problems	1
1.5 Equipment/Apparatus	1
1.6 Reagents	2
1.7 Procedures	2
1.7.1 Decontamination Methods	2
1.7.2 Field Sampling Equipment Cleaning Procedures	3
1.8 Calculations	3
1.9 Quality Assurance/Quality Control	3
1.10 Data Validation	4
1.11 Health and Safety	4
2.0 SOIL SAMPLING: SOP #2012	
2.1 Scope and Application	5
2.2 Method Summary	5
2.3 Sample Preservation, Containers, Handling, and Storage	5
2.4 Interferences and Potential Problems	5
2.5 Equipment/Apparatus	5
2.6 Reagents	5
2.7 Procedures	6
2.7.1 Preparation	6
2.7.2 Sample Collection	6
2.8 Calculations	9
2.9 Quality Assurance/Quality Control	9
2.10 Data Validation	9
2.11 Health and Safety	9
3.0 SOIL GAS SAMPLING: SOP #2149	
3.1 Scope and Application	11
3.2 Method Summary	11
3.3 Sample Preservation, Containers, Handling, and Storage	11
3.3.1 Tedlar Bag	11
3.3.2 Tenax Tube	11
3.3.3 SUMMA Canister	11

<u>Section</u>	<u>Page</u>
3.4 Interferences and Potential Problem	12
3.4.1 HNU Measurements	12
3.4.2 Factors Affecting Organic Concentrations in Soil Gas	12
3.4.3 Soil Probe Clogging	12
3.4.4 Underground Utilities	12
3.5 Equipment/Apparatus	12
3.5.1 Slam Bar Method	12
3.5.2 Power Hammer Method	13
3.6 Reagents	13
3.7 Procedures	13
3.7.1 Soil Gas Well Installation	13
3.7.2 Screening with Field Instruments	14
3.7.3 Tedlar Bag Sampling	14
3.7.4 Tenax Tube Sampling	14
3.7.5 SUMMA Canister Sampling	16
3.8 Calculations	16
3.8.1 Field Screening Instruments	16
3.8.2 Photovac GC Analysis	16
3.9 Quality Assurance/Quality Control	16
3.9.1 Field Instrument Calibration	16
3.9.2 Gilian Model HFS113A Air Sampling Pump Calibration	16
3.9.3 Sample Probe Contamination	16
3.9.4 Sample Train Contamination	16
3.9.5 Field Blank	16
3.9.6 Trip Standard	16
3.9.7 Tedlar Bag Check	17
3.9.8 SUMMA Canister Check	17
3.9.9 Options	17
3.10 Data Validation	17
3.11 Health and Safety	17

<u>Section</u>	<u>Page</u>
4.0 SOIL SAMPLING AND SURFACE GEOPHYSICS: SOP #2159	
4.1 Scope and Application	19
4.2 Method Summary	19
4.2.1 Magnetism	19
4.2.2 Electromagnetics	20
4.2.3 Electrical Resistivity	20
4.2.4 Seismic	21
4.2.5 Ground Penetrating Radar	22
4.3 Sample Preservation, Containers, Handling and Storage	23
4.4 Interferences and Potential Problems	23
4.5 Equipment/Apparatus	24
4.5.1 Magnetism	24
4.5.2 Electromagnetics	24
4.5.3 Electrical Resistivity	24
4.5.4 Seismic	24
4.5.5 Ground Penetrating Radar	24
4.6 Reagents	24
4.7 Procedures	24
4.8 Calculations	24
4.9 Quality Assurance/Quality Control	24
4.10 Data Validation	24
4.11 Health and Safety	24
APPENDIX A - Figures	25
APPENDIX B - HNU Field Protocol	29
REFERENCES	33

## List of Exhibits

<u>Exhibit</u>		<u>SOP</u>	<u>Page</u>
Table 1:	Recommended Solvent Rinse for Soluble Contaminants	#2006	4
Figure 1:	Sampling Augers	#2012	26
Figure 2:	Sampling Trier	#2012	27
Figure 3:	Sampling Train Schematic	#2149	28

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## 1.0 SAMPLING EQUIPMENT DECONTAMINATION: SOP #2006

### 1.1 SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) describes methods used for preventing or reducing cross-contamination, and provides general guidelines for sampling equipment decontamination procedures at a hazardous waste site. Preventing or minimizing cross-contamination in sampled media and in samples is important for preventing the introduction of error into sampling results and for protecting the health and safety of site personnel.

Removing or neutralizing contaminants that have accumulated on sampling equipment ensures protection of personnel from permeating substances, reduces or eliminates transfer of contaminants to clean areas, prevents the mixing of incompatible substances, and minimizes the likelihood of sample cross-contamination.

### 1.2 METHOD SUMMARY

Contaminants can be physically removed from equipment, or deactivated by sterilization or disinfection. Gross contamination of equipment requires physical decontamination, including abrasive and non-abrasive methods. These include the use of brushes, air and wet blasting, and high-pressure water cleaning, followed by a wash/rinse process using appropriate cleaning solutions. Use of a solvent rinse is required when organic contamination is present.

### 1.3 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

This section is not applicable to this SOP.

### 1.4 INTERFERENCES AND POTENTIAL PROBLEMS

- The use of distilled/deionized water commonly available from commercial vendors may be acceptable for decontamination of sampling equipment

provided that it has been verified by laboratory analysis to be analyte free.

- An untreated potable water supply is not an acceptable substitute for tap water. Tap water may be used from any municipal water treatment system for mixing of decontamination solutions.
- Acids and solvents utilized in the decontamination sequence pose the health and safety risks of inhalation or skin contact, and raise shipping concerns of permeation or degradation.
- The site work plan must address disposal of the spent decontamination solutions.
- Several procedures can be established to minimize contact with waste and the potential for contamination. For example:
  - Stress work practices that minimize contact with hazardous substances.
  - Use remote sampling, handling, and container-opening techniques when appropriate.
  - Cover monitoring and sampling equipment with protective material to minimize contamination.
  - Use disposable outer garments and disposable sampling equipment when appropriate.

### 1.5 EQUIPMENT/APPARATUS

- appropriate personal protective clothing
- non-phosphate detergent
- selected solvents
- long-handled brushes
- drop cloths/plastic sheeting
- trash container
- paper towels
- galvanized tubs or buckets
- tap water

- distilled/deionized water
- metal/plastic containers for storage and disposal of contaminated wash solutions
- pressurized sprayers for tap and deionized/distilled water
- sprayers for solvents
- trash bags
- aluminum foil
- safety glasses or splash shield
- emergency eyewash bottle

## 1.6 REAGENTS

There are no reagents used in this procedure aside from the actual decontamination solutions and solvents. In general, the following solvents are utilized for decontamination purposes:

- 10% nitric acid<sup>(1)</sup>
- acetone (pesticide grade)<sup>(2)</sup>
- hexane (pesticide grade)<sup>(2)</sup>
- methanol

<sup>(1)</sup> Only if sample is to be analyzed for trace metals.

<sup>(2)</sup> Only if sample is to be analyzed for organics.

## 1.7 PROCEDURES

As part of the health and safety plan, develop and set up a decontamination plan before any personnel or equipment enter the areas of potential exposure. The equipment decontamination plan should include:

- the number, location, and layout of decontamination stations
- which decontamination apparatus is needed
- the appropriate decontamination methods
- methods for disposal of contaminated clothing, apparatus, and solutions

### 1.7.1 Decontamination Methods

All personnel, samples, and equipment leaving the contaminated area of a site must be decontaminated. Various decontamination methods will either physically remove contaminants, inactivate contaminants by disinfection or sterilization, or do both.

In many cases, gross contamination can be removed by physical means. The physical decontamination techniques appropriate for equipment decontamination can be grouped into two categories: abrasive methods and non-abrasive methods.

### *Abrasive Cleaning Methods*

Abrasive cleaning methods work by rubbing and wearing away the top layer of the surface containing the contaminant. The following abrasive methods are available:

- **Mechanical:** Mechanical cleaning methods use brushes of metal or nylon. The amount and type of contaminants removed will vary with the hardness of bristles, length of brushing time, and degree of brush contact.
- **Air Blasting:** Air blasting is used for cleaning large equipment, such as bulldozers, drilling rigs or auger bits. The equipment used in air blast cleaning employs compressed air to force abrasive material through a nozzle at high velocities. The distance between the nozzle and the surface cleaned, as well as the pressure of air, the time of application, and the angle at which the abrasive strikes the surface, determines cleaning efficiency. Air blasting has several disadvantages: it is unable to control the amount of material removed, it can aerate contaminants, and it generates large amounts of waste.
- **Wet Blasting:** Wet blast cleaning, also used to clean large equipment, involves use of a suspended fine abrasive delivered by compressed air to the contaminated area. The amount of materials removed can be carefully controlled by using very fine abrasives. This method generates a large amount of waste.

### *Non-Abrasive Cleaning Methods*

Non-abrasive cleaning methods work by forcing the contaminant off of a surface with pressure. In general, less of the equipment surface is removed using non-abrasive methods. The following non-abrasive methods are available:

- **High-Pressure Water:** This method consists of a high-pressure pump, an operator-controlled directional nozzle, and a high pressure hose. Operating pressure usually ranges from 340 to 680 atmospheres (atm) which relates to flow rates of 20 to 140 liters per minute.
- **Ultra-High-Pressure Water:** This system produces a pressurized water jet (from 1,000 to 4,000 atm). The ultra-high-pressure spray removes tightly-adhered surface film. The water velocity ranges from 500 m/sec (1,000 atm) to 900 m/sec (4,000 atm). Additives can enhance the method. This method is not applicable for hand-held sampling equipment.

### *Disinfection/Rinse Methods*

- **Disinfection:** Disinfectants are a practical means of inactivating infectious agents.
- **Sterilization:** Standard sterilization methods involve heating the equipment. Sterilization is impractical for large equipment.
- **Rinsing:** Rinsing removes contaminants through dilution, physical attraction, and solubilization.

### **1.7.2 Field Sampling Equipment Cleaning Procedures**

Solvent rinses are not necessarily required when organics are not a contaminant of concern and may be eliminated from the sequence specified below. Similarly, an acid rinse is not required if analysis does not include inorganics.

1. Where applicable, follow physical removal procedures specified in section 1.7.1.
2. Wash equipment with a non-phosphate detergent solution.
3. Rinse with tap water.
4. Rinse with distilled/deionized water.
5. Rinse with 10% nitric acid if the sample will be analyzed for trace organics.

6. Rinse with distilled/deionized water.
7. Use a solvent rinse (pesticide grade) if the sample will be analyzed for organics.
8. Air dry the equipment completely.
9. Rinse again with distilled/deionized water.

Selection of the solvent for use in the decontamination process is based on the contaminants present at the site. Use of a solvent is required when organic contamination is present on-site. Typical solvents used for removal of organic contaminants include acetone, hexane, or water. An acid rinse step is required if metals are present on-site. If a particular contaminant fraction is not present at the site, the nine-step decontamination procedure listed above may be modified for site specificity. The decontamination solvent used should not be among the contaminants of concern at the site.

Table 1 lists solvent rinses which may be required for elimination of particular chemicals. After each solvent rinse, the equipment should be air dried and rinsed with distilled/deionized water.

Sampling equipment that requires the use of plastic tubing should be disassembled and the tubing replaced with clean tubing, before commencement of sampling and between sampling locations.

## **1.8 CALCULATIONS**

This section is not applicable to this SOP.

## **1.9 QUALITY ASSURANCE/ QUALITY CONTROL**

One type of quality control sample specific to the field decontamination process is the rinsate blank. The rinsate blank provides information on the effectiveness of the decontamination process employed in the field. When used in conjunction with field blanks and trip blanks, a rinsate blank can detect contamination during sample handling, storage and sample transportation to the laboratory.

Table 1: Recommended Solvent Rinse for Soluble Contaminants

SOLVENT	SOLUBLE CONTAMINANTS
Water	<ul style="list-style-type: none"> <li>• Low-chain hydrocarbons</li> <li>• Inorganic compounds</li> <li>• Salts</li> <li>• Some organic acids and other polar compounds</li> </ul>
Dilute Acids	<ul style="list-style-type: none"> <li>• Basic (caustic) compounds</li> <li>• Amines</li> <li>• Hydrazines</li> </ul>
Dilute Bases -- for example, detergent and soap	<ul style="list-style-type: none"> <li>• Metals</li> <li>• Acidic compounds</li> <li>• Phenol</li> <li>• Thiols</li> <li>• Some nitro and sulfonic compounds</li> </ul>
Organic Solvents <sup>(1)</sup> - for example, alcohols, ethers, ketones, aromatics, straight-chain alkanes (e.g., hexane), and common petroleum products (e.g., fuel, oil, kerosene)	<ul style="list-style-type: none"> <li>• Nonpolar compounds (e.g., some organic compounds)</li> </ul>

<sup>(1)</sup> - WARNING: Some organic solvents can permeate and/or degrade protective clothing.

A rinsate blank consists of a sample of analyte-free (i.e., deionized) water which is passed over and through a field decontaminated sampling device and placed in a clean sample container.

Rinsate blanks should be run for all parameters of interest at a rate of 1 per 20 for each parameter, even if samples are not shipped that day. Rinsate blanks are not required if dedicated sampling equipment is used.

## 1.10 DATA VALIDATION

This section is not applicable to this SOP.

## 1.11 HEALTH AND SAFETY

When working with potentially hazardous materials, follow U.S. EPA, OSHA and specific health and safety procedures.

Decontamination can pose hazards under certain circumstances even though performed to protect

health and safety. Hazardous substances may be incompatible with decontamination methods. For example, the decontamination solution or solvent may react with contaminants to produce heat, explosion, or toxic products. Decontamination methods may be incompatible with clothing or equipment; some solvents can permeate or degrade protective clothing. Also, decontamination solutions and solvents may pose a direct health hazard to workers through inhalation or skin contact, or if they combust.

The decontamination solutions and solvents must be determined to be compatible before use. Any method that permeates, degrades, or damages personal protective equipment should not be used. If decontamination methods pose a direct health hazard, measures should be taken to protect personnel or the methods should be modified to eliminate the hazard.

## 2.0 SOIL SAMPLING: SOP #2012

### 2.1 SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to describe the procedures for collecting representative soil samples. Analysis of soil samples may determine whether concentrations of specific soil pollutants exceed established action levels, or if the concentrations of soil pollutants present a risk to public health, welfare, or the environment.

### 2.2 METHOD SUMMARY

Soil samples may be collected using a variety of methods and equipment. The methods and equipment used are dependent on the depth of the desired sample, the type of sample required (disturbed versus undisturbed), and the type of soil. Near-surface soils may be easily sampled using a spade, trowel, and scoop. Sampling at greater depths may be performed using a hand auger, a trier, a split-spoon, or, if required, a backhoe.

### 2.3 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Chemical preservation of solids is not generally recommended. Refrigeration to 4°C, supplemented by a minimal holding time, is usually the best approach.

### 2.4 INTERFERENCES AND POTENTIAL PROBLEMS

There are two primary interferences or potential problems associated with soil sampling. These include cross-contamination of samples and improper sample collection. Cross-contamination problems can be eliminated or minimized through the use of dedicated sampling equipment. If this is not possible or practical, then decontamination of sampling equipment is necessary. Improper sample collection can involve using contaminated equipment, disturbance of the matrix resulting in compaction of the sample, or inadequate homogenization of the samples where required,

resulting in variable, non-representative results.

### 2.5 EQUIPMENT/APPARATUS

- sampling plan
- maps/plot plan
- safety equipment, as specified in the health and safety plan
- compass
- tape measure
- survey stakes or flags
- camera and film
- stainless steel, plastic, or other appropriate homogenization bucket or bowl
- 1-quart mason jars w/Teflon liners
- Ziploc plastic bags
- logbook
- labels
- chain of custody forms and seals
- field data sheets
- cooler(s)
- ice
- decontamination supplies/equipment
- canvas or plastic sheet
- spade or shovel
- spatula
- scoop
- plastic or stainless steel spoons
- trowel
- continuous flight (screw) auger
- bucket auger
- post hole auger
- extension rods
- T-handle
- sampling trier
- thin-wall tube sampler
- Vehimeyer soil sampler outfit
  - tubes
  - points
  - drive head
  - drop hammer
  - puller jack and grip
- backhoe

### 2.6 REAGENTS

Reagents are not used for the preservation of soil samples. Decontamination solutions are specified in

## 2.7 PROCEDURES

### 2.7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and which equipment and supplies are required.
2. Obtain necessary sampling and monitoring equipment.
3. Decontaminate or pre-clean equipment, and ensure that it is in working order.
4. Prepare schedules, and coordinate with staff, client, and regulatory agencies, if appropriate.
5. Perform a general site survey prior to site entry in accordance with the site-specific health and safety plan.
6. Use stakes, buoys, or flagging to identify and mark all sampling locations. Consider specific site factors, including extent and nature of contaminant, when selecting sample location. If required, the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions. All staked locations will be utility-cleared by the property owner prior to soil sampling.

### 2.7.2 Sample Collection

#### *Surface Soil Samples*

Collect samples from near-surface soil with tools such as spades, shovels, and scoops. Surface material can be removed to the required depth with this equipment, then a stainless steel or plastic scoop can be used to collect the sample.

This method can be used in most soil types but is limited to sampling near surface areas. Accurate, representative samples can be collected with this procedure depending on the care and precision demonstrated by the sampling team member. The use of a flat, pointed mason trowel to cut a block of the desired soil can be helpful when undisturbed profiles are required. A stainless steel scoop, lab spoon, or plastic spoon will suffice in most other

applications. Avoid the use of devices plated with chrome or other materials. Plating is particularly common with garden implements such as potting trowels.

Follow these procedures to collect surface soil samples.

1. Carefully remove the top layer of soil or debris to the desired sample depth with a pre-cleaned spade.
2. Using a pre-cleaned, stainless steel scoop, plastic spoon, or trowel, remove and discard a thin layer of soil from the area which came in contact with the spade.
3. If volatile organic analysis is to be performed, transfer a portion of the sample directly into an appropriate, labeled sample container(s) with a stainless steel lab spoon, plastic lab spoon, or equivalent and secure the cap(s) tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into an appropriate, labeled container(s) and secure the cap(s) tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled container(s) and secure the cap(s) tightly.

#### *Sampling at Depth with Augers and Thin-Wall Tube Samplers*

This system consists of an auger, a series of extensions, a "T" handle, and a thin-wall tube sampler (Appendix A, Figure 1). The auger is used to bore a hole to a desired sampling depth, and is then withdrawn. The sample may be collected directly from the auger. If a core sample is to be collected, the auger tip is then replaced with a thin-wall tube sampler. The system is then lowered down the borehole, and driven into the soil at the completion depth. The system is withdrawn and the core collected from the thin-wall tube sampler.

Several types of augers are available. These include: bucket, continuous flight (screw), and posthole augers. Bucket augers are better for direct

sample recovery since they provide a large volume of sample in a short time. When continuous flight augers are used, the sample can be collected directly from the flights, which are usually at 5-foot intervals. The continuous flight augers are satisfactory for use when a composite of the complete soil column is desired. Posthole augers have limited utility for sample collection as they are designed to cut through fibrous, rooted, swampy soil.

Follow these procedures for collecting soil samples with the auger and a thin-wall tube sampler.

1. Attach the auger bit to a drill rod extension, and attach the "T" handle to the drill rod.
2. Clear the area to be sampled of any surface debris (e.g., twigs, rocks, litter). It may be advisable to remove the first 3 to 6 inches of surface soil for an area approximately 6 inches in radius around the drilling location.
3. Begin augering, periodically removing and depositing accumulated soils onto a plastic sheet spread near the hole. This prevents accidental brushing of loose material back down the borehole when removing the auger or adding drill rods. It also facilitates refilling the hole, and avoids possible contamination of the surrounding area.
4. After reaching the desired depth, slowly and carefully remove the auger from boring. When sampling directly from the auger, collect sample after the auger is removed from boring and proceed to Step 10.
5. Remove auger tip from drill rods and replace with a pre-cleaned thin-wall tube sampler. Install proper cutting tip.
6. Carefully lower the tube sampler down the borehole. Gradually force the tube sampler into the soil. Care should be taken to avoid scraping the borehole sides. Avoid hammering the drill rods to facilitate coring as the vibrations may cause the boring walls to collapse.
7. Remove the tube sampler, and unscrew the drill rods.
8. Remove the cutting tip and the core from the device.
9. Discard the top of the core (approximately 1 inch), as this represents material collected before penetration of the layer of concern. Place the remaining core into the appropriate labeled sample container(s). Sample homogenization is not required.
10. If volatile organic analysis is to be performed, transfer a portion of the sample directly into an appropriate, labeled sample container(s) with a stainless steel lab spoon, plastic lab spoon, or equivalent and secure the cap(s) tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into an appropriate, labeled container(s) and secure the cap(s) tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into the appropriate, labeled container(s) and secure the cap(s) tightly.
11. If another sample is to be collected in the same hole, but at a greater depth, reattach the auger bit to the drill and assembly, and follow steps 3 through 11, making sure to decontaminate the auger and tube sampler between samples.
12. Abandon the hole according to applicable state regulations. Generally, shallow holes can simply be backfilled with the removed soil material.

### *Sampling at Depth with a Trier*

The system consists of a trier, and a "T" handle. The auger is driven into the soil to be sampled and used to extract a core sample from the appropriate depth.

Follow these procedures to collect soil samples with a sampling trier.

1. Insert the trier (Appendix A, Figure 2) into the material to be sampled at a 0° to 45° angle from horizontal. This orientation minimizes the spillage of sample.
2. Rotate the trier once or twice to cut a core of material.



3. Slowly withdraw the trier, making sure that the slot is facing upward.
4. If volatile organic analysis is to be performed, transfer a portion of the sample directly into an appropriate, labeled sample container(s) with a stainless steel lab spoon, plastic lab spoon, or equivalent and secure the cap(s) tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into an appropriate, labeled container(s) and secure the cap(s) tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into an appropriate, labeled container(s) and secure the cap(s) tightly.

### *Sampling at Depth with a Split Spoon (Barrel) Sampler*

The procedure for split spoon sampling describes the collection and extraction of undisturbed soil cores of 18 or 24 inches in length. A series of consecutive cores may be extracted with a split spoon sampler to give a complete soil column profile, or an auger may be used to drill down to the desired depth for sampling. The split spoon is then driven to its sampling depth through the bottom of the augured hole and the core extracted.

When split tube sampling is performed to gain geologic information, all work should be performed in accordance with ASTM D 1586-67 (reapproved 1974).

Follow these procedures for collecting soil samples with a split spoon.

1. Assemble the sampler by aligning both sides of the barrel and then screwing the bit onto the bottom and the heavier head piece onto the top.
2. Place the sampler in a perpendicular position on the sample material.
3. Using a sledge hammer or well ring, if available, drive the tube. Do not drive past the bottom of the head piece or compression of the

sample will result.

4. Record in the site logbook or on field data sheets the length of the tube used to penetrate the material being sampled, and the number of blows required to obtain this depth.
5. Withdraw the sampler, and open by unscrewing the bit and head and splitting the barrel. If a split sample is desired, a cleaned, stainless steel knife should be used to divide the tube contents in half, longitudinally. This sampler is typically available in diameters of 2 and 3 1/2 inches. However, in order to obtain the required sample volume, use of a larger barrel may be required.
6. Without disturbing the core, transfer it to an appropriate labeled sample container(s) and seal tightly.

### *Test Pit/Trench Excavation*

These relatively large excavations are used to remove sections of soil, when detailed examination of soil characteristics (horizontal structure, color, etc.) are required. It is the least cost effective sampling method due to the relatively high cost of backhoe operation.

Follow these procedures for collecting soil samples from test pit/trench excavations.

1. Prior to any excavation with a backhoe, it is important to ensure that all sampling locations are clear of utility lines and poles (subsurface as well as above surface).
2. Using the backhoe, dig a trench to approximately 3 feet in width and approximately 1 foot below the cleared sampling location. Place removed or excavated soils on plastic sheets. Trenches greater than 5 feet deep must be sloped or protected by a shoring system, as required by OSHA regulations.
3. Use a shovel to remove a 1- to 2-inch layer of soil from the vertical face of the pit where sampling is to be done.
4. Take samples using a trowel, scoop, or coring device at the desired intervals. Be sure to scrape the vertical face at the point of sampling

to remove any soil that may have fallen from above, and to expose fresh soil for sampling. In many instances, samples can be collected directly from the backhoe bucket.

5. If volatile organic analysis is to be performed, transfer a portion of the sample directly into an appropriate, labeled sample container(s) with a stainless steel lab spoon, plastic lab spoon, or equivalent and secure the cap(s) tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into an appropriate, labeled container(s) and secure the cap(s) tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled container(s) and secure the cap(s) tightly.
6. Abandon the pit or excavation according to applicable state regulations. Generally, shallow excavations can simply be backfilled with the removed soil material.

## **2.8 CALCULATIONS**

This section is not applicable to this SOP.

## **2.9 QUALITY ASSURANCE/ QUALITY CONTROL**

There are no specific quality assurance activities which apply to the implementation of these procedures. However, the following QA procedures apply:

- All data must be documented on field data sheets or within site logbooks.
- All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation, and they must be documented.

## **2.10 DATA VALIDATION**

This section is not applicable to this SOP.

## **2.11 HEALTH AND SAFETY**

When working with potentially hazardous materials, follow U.S. EPA, OSHA, and specific health and safety procedures.

## 3.0 SOIL GAS SAMPLING: SOP #2149

### 3.1 SCOPE AND APPLICATION

Soil gas monitoring provides a quick means of waste site evaluation. Using this method, underground contamination can be identified, and the source, extent, and movement of the pollutants can be traced.

This Standard Operating Procedure (SOP) outlines the methods used by EPA/ERT in installing soil gas wells; measuring organic levels in the soil gas using an HNU PI 101 Portable Photoionization Analyzer and/or other air monitoring devices; and sampling the soil gas using Tedlar bags, Tenax sorbent tubes, and SUMMA canisters.

### 3.2 METHOD SUMMARY

A 3/8-inch diameter hole is driven into the ground to a depth of 4 to 5 feet using a commercially available "slam bar". (Soil gas can also be sampled at other depths by the use of a longer bar or bar attachments.) A 1/4-inch O.D. stainless steel probe is inserted into the hole. The hole is then sealed at the top around the probe using modeling clay. The gas contained in the interstitial spaces of the soil is sampled by pulling the sample through the probe using an air sampling pump. The sample may be stored in Tedlar bags, drawn through sorbent cartridges, or analyzed directly using a direct reading instrument.

The air sampling pump is not used for SUMMA canister sampling of soil gas. Sampling is achieved by soil gas equilibration with the evacuated SUMMA canister. Other field air monitoring devices, such as the combustible gas indicator (MSA CGI/02 Meter, Model 260) and the organic vapor analyzer (Foxboro OVA, Model 128), can also be used depending on specific site conditions. Measurement of soil temperature using a temperature probe may also be desirable. Bagged samples are usually analyzed in a field laboratory using a portable Photovac GC.

Power driven sampling probes may be utilized when soil conditions make sampling by hand unfeasible (i.e., frozen ground, very dense clays, pavement,

etc.). Commercially available soil gas sampling probes (hollow, 1/2-inch O.D. steel probes) can be driven to the desired depth using a power hammer (e.g., Bosch Demolition Hammer). Samples can be drawn through the probe itself, or through Teflon tubing inserted through the probe and attached to the probe point. Samples are collected and analyzed as described above.

### 3.3 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

#### 3.3.1 Tedlar Bag

Soil gas samples are generally contained in 1-L Tedlar bags. Bagged samples are best stored in coolers to protect the bags from any damage that may occur in the field or in transit. In addition, coolers ensure the integrity of the samples by keeping them at a cool temperature and out of direct sunlight. Samples should be analyzed as soon as possible, preferably within 24 to 48 hours.

#### 3.3.2 Tenax Tube

Bagged samples can also be drawn into Tenax or other sorbent tubes to undergo lab GC/MS analysis. If Tenax tubes are to be utilized, special care must be taken to avoid contamination. Handling of the tubes should be kept to a minimum, and samplers must wear nylon or other lint-free gloves. After sampling, each tube should be stored in a clean, sealed culture tube; the ends packed with clean glass wool to protect the sorbent tube from breakage. The culture tubes should be kept cool and wrapped in aluminum foil to prevent any photodegradation of samples (see Section 3.7.4.).

#### 3.3.3 SUMMA Canister

The SUMMA canisters used for soil gas sampling have a 6-L sample capacity and are certified clean by GC/MS analysis before being utilized in the field. After sampling is completed, they are stored and shipped in travel cases.

### **3.4 INTERFERENCES AND POTENTIAL PROBLEMS**

#### **3.4.1 HNU Measurements**

A number of factors can affect the response of the HNU PI 101. High humidity can cause lamp fogging and decreased sensitivity. This can be significant when soil moisture levels are high, or when a soil gas well is actually in groundwater. High concentrations of methane can cause a downscale deflection of the meter. High and low temperature, electrical fields, FM radio transmission, and naturally occurring compounds, such as terpenes in wooded areas, will also affect instrument response.

Other field screening instruments can be affected by interferences. Consult the manufacturers' manuals.

#### **3.4.2 Factors Affecting Organic Concentrations in Soil Gas**

Concentrations in soil gas are affected by dissolution, adsorption, and partitioning. Partitioning refers to the ratio of component found in a saturated vapor above an aqueous solution to the amount in the solution; this can, in theory, be calculated using the Henry's Law constants. Contaminants can also be adsorbed onto inorganic soil components or "dissolved" in organic components. These factors can result in a lowering of the partitioning coefficient.

Soil "tightness" or amount of void space in the soil matrix, will affect the rate of recharging of gas into the soil gas well.

Existence of a high, or perched, water table, or of an impermeable underlying layer (such as a clay lens or layer of buried slag) may interfere with sampling of the soil gas. Knowledge of site geology is useful in such situations, and can prevent inaccurate sampling.

#### **3.4.3 Soil Probe Clogging**

A common problem with this sampling method is soil probe clogging. A clogged probe can be identified by using an in-line vacuum gauge or by listening for the sound of the pump laboring. This problem can usually be eliminated by using a wire cable to clear the probe (see procedure #3 in Section 3.7.1).

#### **3.4.4 Underground Utilities**

Prior to selecting sample locations, an underground utility search is recommended. The local utility companies can be contacted and requested to mark the locations of their underground lines. Sampling plans can then be drawn up accordingly. Each sample location should also be screened with a metal detector or magnetometer to verify that no underground pipes or drums exist.

### **3.5 EQUIPMENT/APPARATUS**

#### **3.5.1 Slam Bar Method**

- slam bar (one per sampling team)
- soil gas probes, stainless steel tubing, 1/4-inch O.D., 5 foot length
- flexible wire or cable used for clearing the tubing during insertion into the well
- "quick connect" fittings to connect sampling probe tubing, monitoring instruments, and Gilian pumps to appropriate fittings on vacuum box
- modeling clay
- vacuum box for drawing a vacuum around Tedlar bag for sample collection (one per sampling team)
- Gilian pump Model HFS113A adjusted to approximately 3.0 L/min (one to two per sampling team)
- 1/4-inch Teflon tubing, 2 to 3 foot lengths, for replacement of contaminated sample line
- Tedlar bags, 1 liter, at least one bag per sample point
- soil gas sampling labels, field data sheets, logbook, etc.
- HNU Model PI 101, or other field air monitoring devices, (one per sampling team)
- ice chest, for carrying equipment and for protection of samples (two per sampling team)
- metal detector or magnetometer, for detecting underground utilities/pipes/drums (one per sampling team)
- Photovac GC, for field-lab analysis of bagged samples
- SUMMA canisters (plus their shipping cases) for sample, storage and transportation

### 3.5.2 Power Hammer Method

- Bosch demolition hammer
- 1/2-inch O.D. steel probes, extensions, and points
- dedicated aluminum sampling points
- Teflon tubing, 1/4-inch O.D.
- "quick connect" fittings to connect sampling probe tubing, monitoring instruments, and Gilian pumps to appropriate fittings on vacuum box
- modeling clay
- vacuum box for drawing a vacuum around Tedlar bag for sample collection (one per sampling team)
- Gilian pump Model HFS113A adjusted to approximately 3.0 L/min (one to two per sampling team)
- 1/4-inch Teflon tubing, 2 to 3 foot lengths, for replacement of contaminated sample line
- Tedlar bags, 1 liter, at least one bag per sample point
- soil gas sampling labels, field data sheets, logbook, etc.
- HNU Model PI 101, or other field air monitoring devices, (one per sampling team)
- ice chest, for carrying equipment and for protection of samples (two per sampling team)
- metal detector or magnetometer, for detecting underground utilities/pipes/drums (one per sampling team)
- Photovac GC, for field-lab analysis of bagged samples
- SUMMA canisters (plus their shipping cases) for sample, storage and transportation
- generator with extension cords
- high lift jack assembly for removing probes

### 3.6 REAGENTS

- HNU Systems Inc. Calibration Gas for HNU Model PI 101, and/or calibration gas for other field air monitoring devices
- deionized organic-free water, for decontamination
- methanol, HPLC grade, for decontamination
- ultra-zero grade compressed air, for field blanks

- standard gas preparations for Photovac GC calibration and Tedlar bag spikes

## 3.7 PROCEDURES

### 3.7.1 Soil Gas Well Installation

1. Initially, make a hole slightly deeper than the desired depth. For sampling up to 5 feet, use a 5-foot single piston slam bar. For deeper depths, use a piston slam bar with threaded 4-foot-long extensions. Other techniques can be used, so long as holes are of narrow diameter and no contamination is introduced.
2. After the hole is made, carefully withdraw the slam bar to prevent collapse of the walls of the hole. Then insert the soil gas probe.
3. It is necessary to prevent plugging of the probe, especially for deeper holes. Place a metal wire or cable, slightly longer than the probe, into the probe prior to inserting into the hole. Insert the probe to full depth, then pull it up 3 to 6 inches, then clear it by moving the cable up and down. The cable is removed before sampling.
4. Seal the top of the sample hole at the surface against ambient air infiltration by using modeling clay molded around the probe at the surface of the hole.
5. If conditions preclude hand installation of the soil gas wells, the power driven system may be employed. Use the generator-powered demolition hammer to drive the probe to the desired depth (up to 12 feet may be attained with extensions). Pull the probe up 1 to 3 inches if the retractable point is used. No clay is needed to seal the hole. After sampling, retrieve the probe using the high lift jack assembly.
6. If semi-permanent soil gas wells are required, use the dedicated aluminum probe points. Insert these points into the bottom of the power-driven probe and attach it to the Teflon tubing. Insert the probe as in step 5. When the probe is removed, the point and Teflon tube remain in the hole, which may be sealed by backfilling with sand, bentonite, or soil.

### 3.7.2 Screening with Field Instruments

1. The well volume **must** be evacuated prior to sampling. Connect the Gilian pump, adjusted to 3.0 L/min, to the sample probe using a section of Teflon tubing as a connector. Turn the pump on, and a vacuum is pulled through the probe for approximately 15 seconds. A longer time is required for sample wells of greater depths.
2. After evacuation, connect the monitoring instrument(s) to the probe using a Teflon connector. When the reading is stable, or peaks, record the reading. For detailed procedures on HNU field protocol, see appendix B, and refer to the manufacturer's instructions.
3. Some readings may be above or below the range set on the field instruments. The range may be reset, or the response recorded as a figure greater than or less than the range. Consider the recharge rate of the well with soil gas when sampling at a different range setting.

### 3.7.3 Tedlar Bag Sampling

1. Follow step 1 in section 3.7.2 to evacuate well volume. If air monitoring instrument screening was performed prior to sampling, evacuation is not necessary.
2. Use the vacuum box and sampling train (Figure 3 in Appendix A) to take the sample. The sampling train is designed to minimize the introduction of contaminants and losses due to adsorption. All wetted parts are either Teflon or stainless steel. The vacuum is drawn indirectly to avoid contamination from sample pumps.
3. Place the Tedlar bag inside the vacuum box, and attach it to the sampling port. Attach the sample probe to the sampling port via Teflon tubing and a "quick connect" fitting.
4. Draw a vacuum around the outside of the bag, using a Gilian pump connected to the vacuum box evacuation port, via Tygon tubing and a "quick connect" fitting. The vacuum causes the bag to inflate, drawing the sample.

5. Break the vacuum by removing the Tygon line from the pump. Remove the bagged sample from the box and close valve. Label bag, record data on data sheets or in logbooks. Record the date, time, sample location ID, and the HNU, or other instrument reading(s) on sample bag label.

**CAUTION:** Labels should not be pasted directly onto the bags, nor should bags be labeled directly using a marker or pen. Inks and adhesive may diffuse through the bag material, contaminating the sample. Place labels on the edge of the bags, or tie the labels to the metal eyelets provided on the bags. Markers with inks containing volatile organics (i.e., permanent ink markers) should not be used.

### 3.7.4 Tenax Tube Sampling

Samples collected in Tedlar bags may be sorbed onto Tenax tubes for further analysis by GC/MS.

#### *Additional Apparatus*

- Syringe with a luer-lock tip capable of drawing a soil gas or air sample from a Tedlar bag onto a Tenax/CMS sorbent tube. The syringe capacity is dependent upon the volume of sample being drawn onto the sorbent tube.
- Adapters for fitting the sorbent tube between the Tedlar bag and the sampling syringe. The adapter attaching the Tedlar bag to the sorbent tube consists of a reducing union (1/4-inch to 1/16-inch O.D. -- Swagelok cat. # SS-400-6-ILV or equivalent) with a length of 1/4-inch O.D. Teflon tubing replacing the nut on the 1/6-inch (Tedlar bag) side. A 1/4-inch I.D. silicone O-ring replaces the ferrules in the nut on the 1/4-inch (sorbent tube) side of the union.

The adapter attaching the sampling syringe to the sorbent tube consists of a reducing union (1/4-inch to 1/16-inch O.D. -- Swagelok Cat. # SS-400-6-ILV or equivalent) with a 1/4-inch I.D. silicone O-ring replacing the ferrules in the nut on the 1/4-inch (sorbent tube) side and the needle of a luer-lock syringe needle inserted into the 1/16-inch side (held in place with a 1/16-inch ferrule). The

luer-lock end of the needle can be attached to the sampling syringe. It is useful to have a luer-lock on/off valve, situated between the syringe and the needle.

- Two-stage glass sampling cartridge (1/4-inch O.D. x 1/8-inch I.D. x 5 1/8 inch) contained in a flame-sealed tube (manufactured by Supelco Custom Tenax/Sphero Carb Tubes or equivalent) containing two sorbent sections retained by glass wool:

Front section: 150 mg of Tenax-GC

Back section: 150 mg of CMS

(Carbonized Molecular Sieve)

Sorbent tubes may also be prepared in the lab and stored in either Teflon-capped culture tubes or stainless steel tube containers. Sorbent tubes stored in this manner should not be kept more than 2 weeks without reconditioning. (See SOP #2052 for Tenax/CMS sorbent tube preparation).

- Teflon-capped culture tubes or stainless steel tube containers for sorbent tube storage. These containers should be conditioned by baking at 120°C for at least 2 hours. The culture tubes should contain a glass wool plug to prevent sorbent tube breakage during transport. Reconditioning of the containers should occur between usage or after extended periods of disuse (i.e., 2 weeks or more).
- Nylon gloves or lint-free cloth. (Hewlett Packard Part # 8650-0030 or equivalent.)

### *Sample Collection*

1. Handle sorbent tubes with care, using nylon gloves (or other lint-free material) to avoid contamination.
2. Immediately before sampling, break one end of the sealed tube and remove the Tenax cartridge. For in-house prepared tubes, remove cartridge from its container.
3. Connect the valve on the Tedlar bag to the sorbent tube adapter. Connect the sorbent tube to the sorbent tube adapter with the Tenax

(white granular) side of the tube facing the Tedlar bag.

4. Connect the sampling syringe assembly to the CMS (black) side of the sorbent tube. Fittings on the adapters should be very tight.
5. Open the valve on the Tedlar bag.
6. Open the on/off valve of the sampling syringe.
7. Draw a predetermined volume of sample onto the sorbent tube. (This may require closing the syringe valve, emptying the syringe and then repeating the procedure, depending upon the syringe capacity and volume of sample required.)
8. After sampling, remove the tube from the sampling train with gloves or a clean cloth. **Do not label or write on the Tenax/CMS tube.**
9. Place the sorbent tube in a conditioned stainless steel tube holder or culture tube. Culture tube caps should be sealed with Teflon tape.

### *Sample Labeling*

Each sample tube container (not tube) must be labeled with the site name, sample station number, sample date, and sample volume.

Chain of custody forms must accompany all samples to the laboratory.

### *Quality Assurance*

Before field use, a QA check should be performed on each batch of sorbent tubes by analyzing a tube with thermal desorption/cryogenic trapping GC/MS.

At least one blank sample must be submitted with each set of samples collected at a site. This trip blank must be treated the same as the sample tubes except no sample will be drawn through the tube.

Sample tubes should be stored out of UV light (i.e., sunlight) and kept on ice until analysis.

Samples should be taken in duplicate, when possible.



### 3.7.5 SUMMA Canister Sampling

1. Follow item 1 in step 3.7.2 to evacuate well volume. If HNU analysis was performed prior to taking a sample, evacuation is not necessary.
2. Attach a certified clean, evacuated 6-L SUMMA canister via the 1/4-inch Teflon tubing.
3. Open the valve on SUMMA canister. The soil gas sample is drawn into the canister by pressure equilibration. The approximate sampling time for a 6-L canister is 20 minutes.
4. Site name, sample location, number, and date must be recorded on a chain of custody form and on a blank tag attached to the canister.

## 3.8 CALCULATIONS

### 3.8.1 Field Screening Instruments

Instrument readings are usually read directly from the meter. In some cases, the background level at the soil gas station may be subtracted:

$$\text{Final Reading} = \text{Sample Reading} - \text{Background}$$

### 3.8.2 Photovac GC Analysis

Calculations used to determine concentrations of individual components by Photovac GC analysis are beyond the scope of this SOP and are covered in ERT SOP #2109, Photovac GC Analysis for Soil, Water and Air/Soil Gas.

## 3.9 QUALITY ASSURANCE/ QUALITY CONTROL

### 3.9.1 Field Instrument Calibration

Consult the manufacturers' manuals for correct use and calibration of all instrumentation. The HNU should be calibrated at least once a day.

### 3.9.2 Gilian Model HFS113A Air Sampling Pump Calibration

Flow should be set at approximately 3.0 L/min;

accurate flow adjustment is not necessary. Pumps should be calibrated prior to bringing into the field.

### 3.9.3 Sample Probe Contamination

Sample probe contamination is checked between each sample by drawing ambient air through the probe via a Gilian pump and checking the response of the HNU PI 101. If HNU readings are higher than background, replacement or decontamination is necessary.

Sample probes may be decontaminated simply by drawing ambient air through the probe until the HNU reading is at background. More persistent contamination can be washed out using methanol and water, then air drying. Having more than one probe per sample team will reduce lag times between sample stations while probes are decontaminated.

### 3.9.4 Sample Train Contamination

The Teflon line forming the sample train from the probe to the Tedlar bag should be changed on a daily basis. If visible contamination (soil or water) is drawn into the sampling train, it should be changed immediately. When sampling in highly contaminated areas, the sampling train should be purged with ambient air, via a Gilian pump, for approximately 30 seconds between each sample. After purging, the sampling train can be checked using an HNU, or other field monitoring device, to establish the cleanliness of the Teflon line.

### 3.9.5 Field Blank

Each cooler containing samples should also contain one Tedlar bag of ultra-zero grade air, acting as a field blank. The field blank should accompany the samples in the field (while being collected) and when they are delivered for analysis. A fresh blank must be provided to be placed in the empty cooler pending additional sample collection. One new field blank per cooler of samples is required. A chain of custody form must accompany each cooler of samples and should include the blank that is dedicated to that group of samples.

### 3.9.6 Trip Standard

Each cooler containing samples should contain a Tedlar bag of standard gas to calibrate the

analytical instruments (Photovac GC, etc.). This trip standard will be used to determine any changes in concentrations of the target compounds during the course of the sampling day (e.g., migration through the sample bag, degradation, or adsorption). A fresh trip standard must be provided and placed in each cooler pending additional sample collection. A chain of custody form should accompany each cooler of samples and should include the trip standard that is dedicated to that group of samples.

### 3.9.7 Tedlar Bag Check

Prior to use, one bag should be removed from each lot (case of 100) of Tedlar bags to be used for sampling and checked for possible contamination as follows: the test bag should be filled with ultra-zero grade air; a sample should be drawn from the bag and analyzed via Photovac GC or whatever method is to be used for sample analysis. This procedure will ensure sample container cleanliness prior to the start of the sampling effort.

### 3.9.8 SUMMA Canister Check

From each lot of four cleaned SUMMA canisters, one is to be removed for a GC/MS certification check. If the canister passes certification, then it is re-evacuated and all four canisters from that lot are available for sampling.

If the chosen canister is contaminated, then the entire lot of four SUMMA canisters must be recleaned, and a single canister is re-analyzed by GC/MS for certification.

### 3.9.9 Options

#### *Duplicate Samples*

A minimum of 5% of all samples should be collected in duplicate (i.e., if a total of 100 samples are to be collected, five samples should be duplicated). In choosing which samples to duplicate, the following criterion applies: if, after filling the first Tedlar bag, and, evacuating the well for 15 seconds, the second HNU (or other field monitoring device being used) reading matches or is close to (within 50%) the first reading, a duplicate sample may be taken.

### *Spikes*

A Tedlar bag spike and Tenax tube spike may be desirable in situations where high concentrations of contaminants other than the target compounds are found to exist (landfills, etc.). The additional level of QA/QC attained by this practice can be useful in determining the effects of interferences caused by these non-target compounds. SUMMA canisters containing samples are not spiked.

## 3.10 DATA VALIDATION

For each target compound, the level of concentration found in the sample must be greater than three times the level (for that compound) found in the field blank which accompanied that sample to be considered valid. The same criteria apply to target compounds detected in the Tedlar bag pre-sampling contamination check.

## 3.11 HEALTH AND SAFETY

Because the sample is being drawn from underground, and no contamination is introduced into the breathing zone, soil gas sampling usually occurs in Level D, unless the sampling location is within the hot zone of a site, which requires Level B or Level C protection. However, to ensure that the proper level of protection is utilized, constantly monitor the ambient air using the HNU PI 101 to obtain background readings during the sampling procedure. As long as the levels in ambient air do not rise above background, no upgrade of the level of protection is needed.

Also, perform an underground utility search prior to sampling (see section 3.4.4). When working with potentially hazardous materials, follow U.S. EPA, OSHA, and specific health and safety procedures.

## 4.0 General Surface Geophysics: SOP #2159

### 4.1 SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) describes the general procedures used to acquire surface geophysical data. This data is used for delineating subsurface waste, and for interpreting geologic, hydrogeologic or other data related to hazardous waste site characterization.

The media pertinent to these surface geophysical methods are soil/rock and groundwater. The sensitivity or minimum response of a given method depends on the comparison of the object or area of study to that of its background (i.e., what the media's response would be like without the object of study). Therefore, the suitability of surface geophysical methods for a given investigation must be judged on the object's ability to be measured and the extent to which the specific setting of the study interferes with the measurement.

The surface geophysical method(s) selected for application at a site are dependent on site conditions, such as depth to bedrock, depth to target, urban disturbances (fences, power lines, surface debris, etc.) and atmospheric conditions. Detectability of the target is dependent on the sensitivity of the instrument and the variation of the field measurement from the ambient noise. Ambient noise is the pervasive noise associated with an environment. Therefore, the applicability of geophysical methods at a given site is dependent on the specific setting at that site.

Five geophysical methods may be utilized in hazardous waste site characterization: magnetometry, electromagnetics, resistivity, seismology and ground penetrating radar (GPR). Magnetometers may be used to locate buried ferrous metallic objects and geologic information. Electromagnetic methods can be used to determine the presence of metals, electrical conductivity of the terrain, and geologic information. Resistivity methods are used to determine the electrical resistivity of the terrain and geologic information. Seismic methods are useful in determining geologic stratigraphy and structure. GPR may be used to locate disturbance in the soil (i.e., trenches, buried utilities and fill boundaries) and some near-surface geologic information.

These procedures may be varied or changed as required, dependent on site conditions, equipment limitations or limitations imposed by the procedure. In all instances, the procedures employed should be documented and associated with the final report.

### 4.2 METHOD SUMMARY

#### 4.2.1 Magnetics

A magnetometer is an instrument which measures magnetic field strength in units of gammas (nanoteslas). Local variations, or anomalies, in the earth's magnetic field are the result of disturbances caused mostly by variations in concentrations of ferromagnetic material in the vicinity of the magnetometer's sensor. A buried ferrous object, such as a steel drum or tank, locally distorts the earth's magnetic field and results in a magnetic anomaly. The objective of conducting a magnetic survey at a hazardous waste or groundwater pollution site is to map these anomalies and delineate the area containing buried sources of the anomalies.

Analysis of magnetic data can allow an experienced geophysicist to estimate the areal extent of buried ferrous targets, such as a steel tank or drum. Often, areas of burial can be prioritized upon examination of the data, with high priority areas indicating a near certainty of buried ferrous material. In some instances, estimates of depth of burial can be made from the data. Most of these depth estimates are graphical methods of interpretation, such as slope techniques and half-width rules, as described by Nettleton (1976). The accuracy of these methods is dependent upon the quality of the data and the skill of the interpreting geophysicist. An accuracy of 10 to 20 percent is considered acceptable. The magnetic method may also be used to map certain geologic features, such as igneous intrusions, which may play an important role in the hydrogeology of a groundwater pollution site.

#### Advantages

Advantages of using the magnetic method for the initial assessment of hazardous waste sites are the

relatively low cost of conducting the survey and the relative ease of completing a survey in a short amount of time. Little, if any, site preparation is necessary. Surveying requirements are not as stringent as for other methods and may be completed with a transit or Brunton-type pocket transit and a non-metallic measuring tape. Often, a magnetic investigation is a very cost-effective method for initial assessment of a hazardous waste site where buried steel drums or tanks are a concern.

### *Disadvantages*

"Cultural noise" is a limitation of the magnetic method in certain areas. Man-made structures that are constructed with ferrous material, such as steel, have a detrimental effect on the quality of the data. Avoid features such as steel structures, power lines, metal fences, steel reinforced concrete, pipelines and underground utilities. When these features are unavoidable, note their locations in a field notebook and on the site map.

Another limitation of the magnetic method is the inability of the interpretation methods to differentiate between various steel objects. For instance, it is not possible to determine if an anomaly is the result of a steel tank, or a group of steel drums, or old washing machines. Also, the magnetic method does not allow the interpreter to determine the contents of a buried tank or drum.

### **4.2.2 Electromagnetics**

The electromagnetic method is a geophysical technique based on the physical principles of inducing and detecting electrical current flow within geologic strata. A receiver detects these induced currents by measuring the resulting time-varying magnetic field. The electromagnetic method measures bulk conductivity (the inverse of resistivity) of geologic materials beneath the transmitter and receiver coils. Electromagnetics should not be confused with the electrical resistivity method. The difference between the two techniques is in the method which the electrical currents are forced to flow in the earth. In the electromagnetic method, currents are induced by the application of time-varying magnetic fields, whereas in the electrical resistivity method, current is injected into the ground through surface electrodes.

Electromagnetics can be used to locate pipes, utility

lines, cables, buried steel drums, trenches, buried waste, and concentrated contaminant plumes. The method can also be used to map shallow geologic features, such as lithologic changes and fault zones.

### *Advantages*

Electromagnetic measurements can be collected rapidly and with a minimum number of field personnel. Most electromagnetic equipment used in groundwater pollution investigations is lightweight and easily portable. The electromagnetic method is one of the more commonly used geophysical techniques applied to groundwater pollution investigations.

### *Disadvantages*

The main limitation of the electromagnetic method is "cultural noise". Sources of "cultural noise" can include: large metal objects, buried cables, pipes, buildings, and metal fences.

The electromagnetic method has limitations in areas where the geology varies laterally. These can cause conductivity anomalies or lineations, which might be misinterpreted as contaminant plumes.

### **4.2.3 Electrical Resistivity**

The electrical resistivity method is used to map subsurface electrical resistivity structure, which is in turn interpreted by the geophysicist to determine the geologic structure and/or physical properties of the geologic materials. Electrical resistivities of geologic materials are measured in ohm-meters, and are functions of porosity, permeability, water saturation and the concentration of dissolved solids in the pore fluids.

Resistivity methods measure the bulk resistivity of the subsurface, as do the electromagnetic methods. The difference between the two methods is in the way that electrical currents are forced to flow in the earth. In the electrical resistivity method, current is injected into the ground through surface electrodes, whereas in electromagnetic methods currents are induced by application of time-varying magnetic fields.

### *Advantages*

The principal advantage of the electrical resistivity method is that quantitative modeling is possible

using either computer software or published master curves. The resulting models can provide accurate estimates of depths, thicknesses and resistivities of subsurface layers. The layer resistivities can then be used to estimate the resistivity of the saturating fluid, which is related to the total concentration of dissolved solids in the fluid.

### *Disadvantages*

The limitations of using the resistivity method in groundwater pollution site investigations are largely due to site characteristics, rather than in any inherent limitations of the method. Typically, polluted sites are located in industrial areas that contain an abundance of broad spectrum electrical noise. In conducting a resistivity survey, the voltages are relayed to the receiver over long wires that are grounded at each end. These wires act as antennae receiving the radiated electrical noise that in turn degrades the quality of the measured voltages.

Resistivity surveys require a fairly large area, far removed from pipelines and grounded metallic structures such as metal fences, pipelines and railroad tracks. This requirement precludes using resistivity on many polluted sites. However, the resistivity method can often be used successfully off-site to map the stratigraphy of the area surrounding the site. A general "rule of thumb" for resistivity surveying is that grounded structures be at least half of the maximum electrode spacing distance away from the axis of the survey line.

Another consideration in the resistivity method is that the fieldwork tends to be more labor intensive than some other geophysical techniques. A minimum of two to three crew members are required for the fieldwork.

### **4.2.4 Seismic**

Surface seismic techniques used in groundwater pollution site investigations are largely restricted to seismic refraction and seismic reflection methods. The equipment used for both methods is fundamentally the same and both methods measure the travel-time of acoustic waves propagating through the subsurface. In the refraction method, the travel-time of waves refracted along an acoustic interface is measured, and in the reflection method, the travel-time of a wave which reflects or echoes off an interface is measured.

The interpretation of seismic data will yield subsurface velocity information, which is dependent upon the acoustic properties of the subsurface material. Various geologic materials can be categorized by their acoustic properties or velocities. Depth to geologic interfaces are calculated using the velocities obtained from a seismic investigation. The geologic information gained from a seismic investigation is then used in the hydrogeologic assessment of a groundwater pollution site and the surrounding area. The interpretation of seismic data indicates changes in lithology or stratigraphy, geologic structure, or water saturation (water table). Seismic methods are commonly used to determine the depth and structure of geologic and hydrogeologic units, to estimate hydraulic conductivity, to detect cavities or voids, to determine structure stability, to detect fractures and fault zones, and to estimate ripability. The choice of method depends upon the information needed and the nature of the study area. This decision must be made by a geophysicist who is experienced in both methods, is aware of the geologic information needed by the hydrogeologist, and is also aware of the environment of the study area. The refraction technique has been used more often than the reflection technique for hazardous waste site investigations.

### *Seismic Refraction Method*

Seismic refraction is most commonly used at sites where bedrock is less than 500 feet below the ground surface. Seismic refraction is simply the travel path of a sound wave through an upper medium and along an interface and then back to the surface. A detailed discussion of the seismic refraction technique can be found in Dobrin (1976), Telford, et. al. (1985), and Musgrave (1967).

**Advantages:** Seismic refraction surveys are more common than reflection surveys for site investigations. The velocities of each layer can be determined from refraction data, and a relatively precise estimate of the depth to different interfaces can be calculated.

Refraction surveys add to depth information in-between boreholes. Subsurface information can be obtained between boreholes at a fraction of the cost of drilling. Refraction data can be used to determine the depth to the water table or bedrock. In buried valley areas, refraction surveys map the depth to bedrock. The velocity information

obtained from a refraction survey can be related to various physical properties of the bedrock. Rock types have certain ranges of velocities and these velocities are not always unique to a particular rock type. However, they can allow a geophysicist to differentiate between certain units, such as shales and granites.

**Disadvantages:** The seismic refraction method is based on several assumptions. To successfully resolve the subsurface using the refraction method, the conditions of the geologic environment must approximate these assumptions:

- the velocities of the layers increase with depth,
- the velocity contrast between layers is sufficient to resolve the interface, and
- the geometry of the geophones in relation to the refracting layers will permit the detection of thin layers.

These conditions must be met for accurate depth information.

Collecting and interpreting seismic refraction data has several disadvantages. Data collection can be labor intensive. Also, large line lengths are needed; therefore, as a general rule, the distance from the shot, or seismic source, to the first geophone station must be at least three times the desired depth of exploration.

### *Seismic Reflection Method*

The seismic reflection method is not as commonly used on groundwater pollution site investigations as seismic refraction. In the seismic reflection method, a sound wave travels down to a geologic interface and reflects back to the surface. Reflections occur at an interface where there is a change in the acoustic properties of the subsurface material.

**Advantages:** The seismic reflection method yields information that allows the interpreter to discern between fairly discrete layers, so it is useful for mapping stratigraphy. Reflection data is usually presented in profile form, and depths to interfaces are represented as a function of time. Depth information can be obtained by converting time sections into depth measurements using velocities obtained from seismic refraction data, sonic logs, or

velocity logs. The reflection technique requires much less space than refraction surveys. The long offsets of the seismic source from the geophones, common in refraction surveys, are not required in the reflection method. In some geologic environments, reflection data can yield acceptable depth estimates.

**Disadvantages:** The major disadvantage to using reflection data is that a precise depth determination cannot be made. Velocities obtained from most reflection data are at least 10% and can be 20% of the true velocities. The interpretation of reflection data requires a qualitative approach. In addition to being more labor intensive, the acquisition of reflection data is more complex than refraction data.

The reflection method places higher requirements on the capabilities of the seismic equipment. Reflection data is commonly used in the petroleum exploration industry and requires a large amount of data processing time and lengthy data collection procedures. Although mainframe computers are often used in the reduction and analysis of large amounts of reflection data, recent advances have allowed for the use of personal computers on small reflection surveys for engineering purposes. In most cases, the data must be recorded digitally or converted to a digital format, to employ various numerical processing operations. The use of high resolution reflection seismic methods relies heavily on the geophysicist, the computer capacity, the data reduction and processing programs, resolution capabilities of the seismograph and geophones, and the ingenuity of the interpreter. Without these capabilities, reflection surveys are not recommended.

### **4.2.5 Ground Penetrating Radar**

The ground penetrating radar (GPR) method is used for a variety of civil engineering, groundwater evaluation and hazardous waste site applications. This geophysical method is the most site-specific of all geophysical techniques, providing subsurface information ranging in depth from several tens of meters to only a fraction of a meter. A basic understanding of the function of the GPR instrument, together with a knowledge of the geology and mineralogy of the site, can help determine if GPR will be successful in the site assessment. When possible, the GPR technique should be integrated with other geophysical and

geologic data to provide the most comprehensive site assessment.

The GPR method uses a transmitter that emits pulses of high-frequency electromagnetic waves into the subsurface. The transmitter is either moved slowly across the ground surface or moved at fixed station intervals. The penetrating electromagnetic waves are scattered at points of change in the complex dielectric permittivity, which is a property of the subsurface material dependent primarily upon the bulk density, clay content and water content of the subsurface (Olhoeft, 1984). The electromagnetic energy which is scattered back to the receiving antenna on the surface is recorded as a function of time.

Depth penetration is severely limited by attenuation of the transmitted electromagnetic waves into the ground. Attenuation is caused by the sum of electrical conductivity, dielectric relaxation, and geometric scattering losses in the subsurface. Generally, penetration of radar frequencies is minimized by a shallow water table, an increase in the clay content of the subsurface, and in environments where the electrical resistivity of the subsurface is less than 30 ohm-meters (Olhoeft, 1986). Ground penetrating radar works best in dry sandy soil above the water table. At applicable sites, depth resolution should be between 1 and 10 meters (Benson, 1982).

The analog plot produced by a continuously recording GPR system is analogous to a seismic reflection profile; that is, data is represented as a function of horizontal distance versus time. This representation should not be confused with a geologic cross section which represents data as a function of horizontal distance versus depth. Because very high-frequency electromagnetic waves in the megahertz range are used by radar systems, and time delays are measured in nanoseconds ( $10^{-9}$  seconds), very high resolution of the subsurface is possible using GPR. This resolution can be as high as 0.1 meter. For depth determinations, it is necessary to correlate the recorded features with actual depth measurements from boreholes or from the results of other geophysical investigations. When properly interpreted, GPR data can optimally resolve changes in soil horizons, fractures, water insoluble contaminants, geological features, man-made buried objects, and hydrologic features such as water table depth and wetting fronts.

## **Advantages**

Most GPR systems can provide a continuous display of data along a traverse which can often be interpreted qualitatively in the field. GPR is capable of providing high resolution data under favorable site conditions. The real-time capability of GPR results in a rapid turnaround, and allows the geophysicist to quickly evaluate subsurface site conditions.

## **Disadvantages**

One of the major limitations of GPR is the site-specific nature of the technique. Another limitation is the cost of site preparation which is necessary prior to the survey. Most GPR units are towed across the ground surface. Ideally, the ground surface should be flat, dry, and clear of any brush or debris. The quality of the data can be degraded by a variety of factors, such as an uneven ground surface or various cultural noise sources. For these reasons, it is mandatory that the site be visited by the project geophysicist before a GPR investigation is proposed. The geophysicist should also evaluate all stratigraphic information available, such as borehole data and information on the depth to water table in the survey area.

## **4.3 SAMPLE PRESERVATION, CONTAINERS, HANDLING AND STORAGE**

This section is not applicable to this SOP.

## **4.4 INTERFERENCES AND POTENTIAL PROBLEMS**

See section 4.2.1 for a discussion of limitations of the magnetic method.

See section 4.2.2 for a discussion of limitations of the electromagnetic method.

See section 4.2.3 for a discussion of limitations of the electrical resistivity method.

See section 4.2.4 for a discussion of limitations of the seismic refraction method and the seismic reflection method.



See section 4.2.5 for a discussion of limitations of the ground penetrating radar (GPR) method.

## **4.5 EQUIPMENT/APPARATUS**

### **4.5.1 Magnetics**

- GEM GSM-19G magnetometer/gradiometer, EDA OMNI IV magnetometer/gradiometer, Geonics 856AGX (with built-in datalogger) or equivalent
- magnetometer base station
- 300-foot tape measure
- non-ferrous survey stakes (wooden or plastic)

### **4.5.2 Electromagnetics**

- Geonics EM-31, EM-34 or equivalent
- Polycorder datalogger
- Dat 31Q software (data dump software)
- 300-foot tape measure
- survey stakes

### **4.5.3 Electrical Resistivity**

- DC resistivity unit (non-specific)
- 4 electrodes and appropriate cables (length dependent on depth of survey)
- 1 or 2 12-volt car batteries
- 300-foot tape measure

### **4.5.4 Seismic**

- 12- or 24-channel seismograph (Geometrics 2401 or equivalent)
- 30 10Hz to 14Hz geophones (for refraction)
- 30 50Hz or greater geophones (for reflection)
- 300-foot tape measure
- survey stakes
- sledge hammer and metal plate or explosives

### **4.5.5 Ground Penetrating Radar**

- GSSI SIR-8 or equivalent
- 80 Mhz, 100 Mhz or 300 Mhz antenna/receiver pit
- 200-foot cable
- 300-foot tape measure

## **4.6 REAGENTS**

This section is not applicable to this SOP.

## **4.7 PROCEDURES**

Refer to the manufacturer's operating manual for specific procedures relating to operation of the equipment.

## **4.8 CALCULATIONS**

Calculations vary based on the geophysical method employed. Refer to the instrument-specific users manual for specific formulae.

## **4.9 QUALITY ASSURANCE/ QUALITY CONTROL**

The following general quality assurance activities apply to the implementation of these procedures.

- All data must be documented on field data sheets or within site logbooks.
- All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation, and they must be documented.

Method-specific quality assurance procedures may be found in the user's manual.

## **4.10 DATA VALIDATION**

Evaluate data as per the criteria established in section 4.9 above.

## **4.11 HEALTH AND SAFETY**

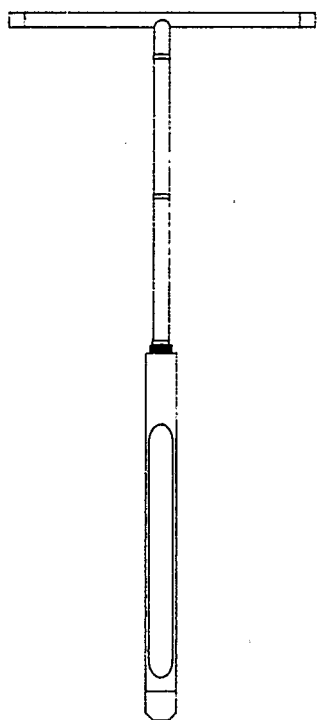
When working with potentially hazardous materials, follow U.S. EPA, OSHA and specific health and safety procedures.

## APPENDIX A

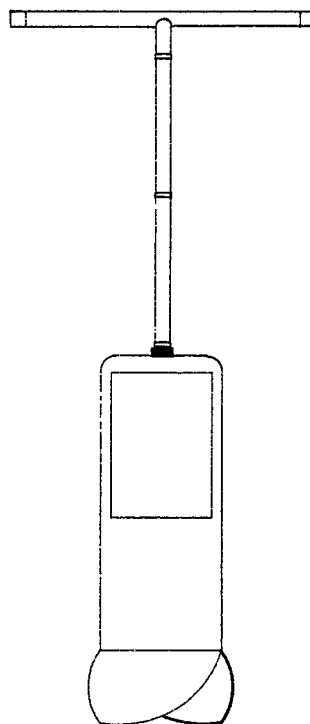
### Figures

Figure 1: Sampling Augers

SOP #2012



TUBE  
AUGER



BUCKET  
AUGER

Figure 2: Sampling Trier

SOP #2012

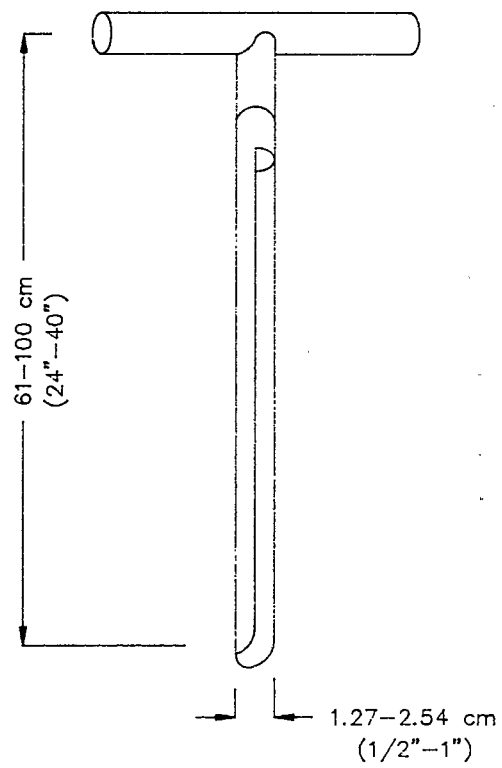
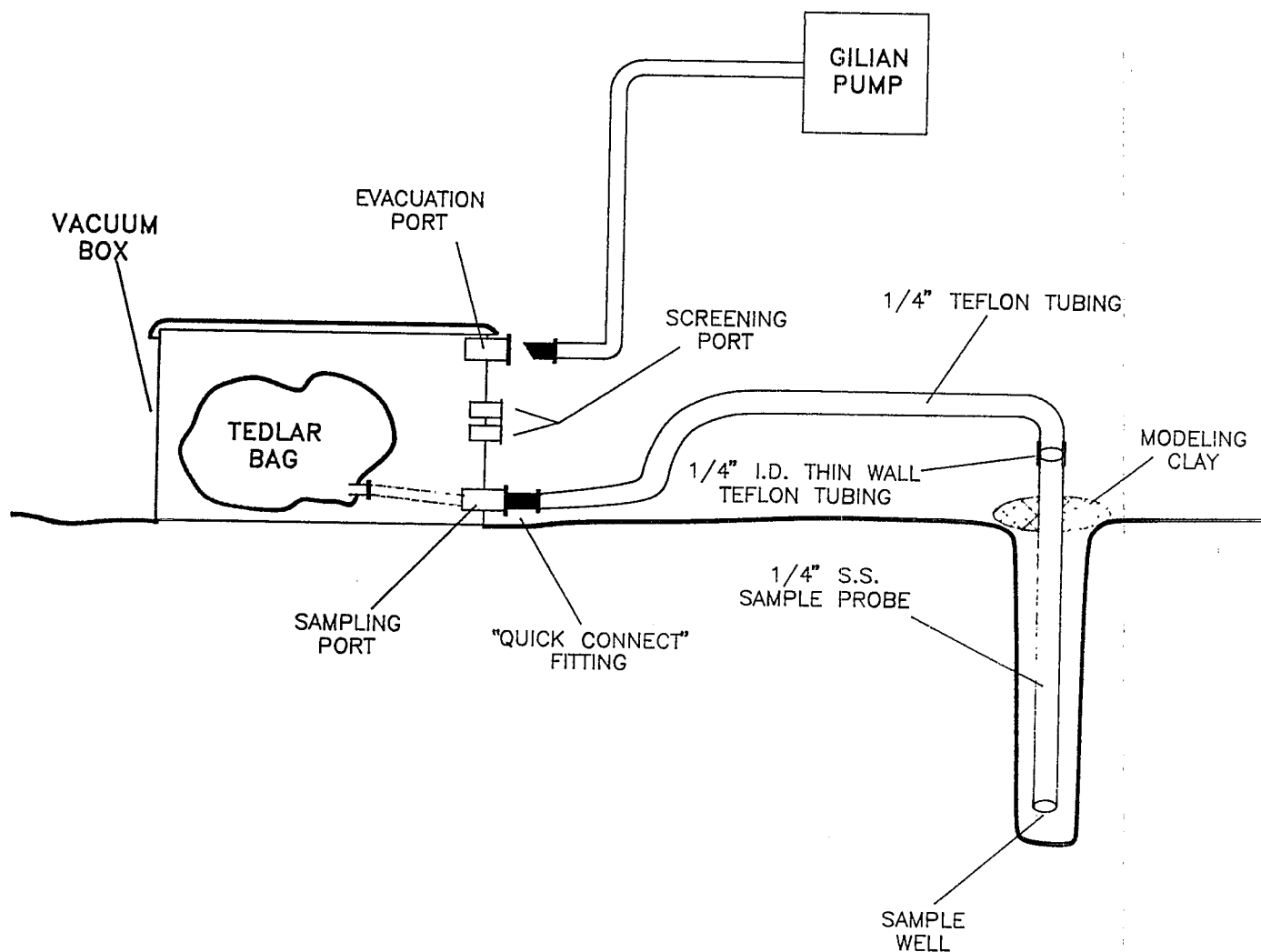


Figure 3: Sampling Train Schematic

SOP #2149



## APPENDIX B

### HNU Field Protocol

## HNU Field Protocol SOP #2149

### Startup Procedure

1. Before attaching the probe, check the function switch on the control panel to ensure that it is in the "off" position. Attach the probe by plugging it into the interface on the top of the readout module. Use care in aligning the prongs in the probe cord with the socket: do not force it.
2. Turn the function switch to the battery check position. The needle on the meter should read within or above the green area on the scale. If not, recharge the battery. If the red indicator light comes on, the battery needs recharging.
3. Turn the function switch to any range setting. For no more than 2 to 3 seconds, look into the end of the probe to see if the lamp is on. If it is on, you will see a purple glow. Do not stare into the probe any longer than three seconds. Long term exposure to UV light can damage the eyes. Also, listen for the hum of the fan motor.
4. To zero the instrument, turn the function switch to the standby position and rotate the zero adjustment until the meter reads zero. A calibration gas is not needed since this is an electronic zero adjustment. If the span adjustment setting is changed after the zero is set, the zero should be rechecked and adjusted, if necessary. Wait 15 to 20 seconds to ensure that the zero reading is stable. If necessary, readjust the zero.
2. Set the function switch to the range setting for the concentration of the calibration gas.
3. Attach a regulator (HNU 101-351) to a disposable cylinder of isobutylene gas. Connect the regulator to the probe of the HNU with a piece of clean Tygon tubing. Turn the valve on the regulator to the "on" position.
4. After 15 seconds, adjust the span dial until the meter reading equals the concentration of the calibration gas used. The calibration gas is usually 100 ppm of isobutylene in zero air. The cylinders are marked in benzene equivalents for the 10.2 eV probe (approximately 55 ppm benzene equivalent) and for the 11.7 eV probe (approximately 65 ppm benzene equivalent). Be careful to unlock the span dial before adjusting it. If the span has to be set below 3.0 calibration, the lamp and ion chamber should be inspected and cleaned as appropriate. For cleaning of the 11.7 eV probe, only use an electronic-grade, oil-free freon or similar water-free, grease-free solvent.
5. Record in the field log: the instrument ID # (EPA decal or serial number if the instrument is a rental); the initial and final span settings; the date and time; concentration and type of calibration used; and the name of the person who calibrated the instrument.

### Operational Check

1. Follow the startup procedure.
2. With the instrument set on the 0-20 range, hold a solvent-based Magic Marker near the probe tip. If the meter deflects upscale, the instrument is working.

### Field Calibration Procedure

1. Follow the startup procedure and the operational check.
2. Set the function switch to the appropriate range. If the concentration of gases or vapors is unknown, set the function switch to the 0-20 ppm range. Adjust it as necessary.
3. While taking care not to permit the HNU to be exposed to excessive moisture, dirt, or contamination, monitor the work activity as specified in the site health and safety plan.
4. When the activity is completed or at the end of the day, carefully clean the outside of the HNU with a damp disposable towel to remove any



visible dirt. Return the HNU to a secure area and place on charge.

5. With the exception of the probe's inlet and exhaust, the HNU can be wrapped in clear

plastic to prevent it from becoming contaminated and to prevent water from getting inside in the event of precipitation.



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# COMPENDIUM OF ERT WASTE SAMPLING PROCEDURES

Sampling Equipment Decontamination

Drum Sampling

Tank Sampling

Chip, Wipe, and Sweep Sampling

Waste Pile Sampling

Interim Final

Environmental Response Team  
Emergency Response Division

Office of Emergency and Remedial Response  
U.S. Environmental Protection Agency  
Washington, DC 20460



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Depending on circumstances and needs, it may not be possible or appropriate to follow these procedures exactly in all situations due to site conditions, equipment limitations, and limitations of the standard procedures. Whenever these procedures cannot be followed as written, they may be used as general guidance with any and all modifications fully documented in either QA Plans, Sampling Plans, or final reports of results.

Each Standard Operating Procedure in this compendium contains a discussion on quality assurance/quality control (QA/QC). For more information on QA/QC objectives and requirements, refer to the *Quality Assurance/Quality Control Guidance for Removal Activities*, OSWER directive 9360.4-01, EPA/540/G-90/004.

Questions, comments, and recommendations are welcomed regarding the Compendium of ERT Waste Sampling Procedures. Send remarks to:

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## Table of Contents

<u>Section</u>	<u>Page</u>
1.0     SAMPLING EQUIPMENT DECONTAMINATION: SOP #2006	
1.1     Scope and Application	1
1.2     Method Summary	1
1.3     Sample Preservation, Containers, Handling, and Storage	1
1.4     Interferences and Potential Problems	1
1.5     Equipment/Apparatus	1
1.6     Reagents	2
1.7     Procedures	2
1.7.1     Decontamination Methods	2
1.7.2     Field Sampling Equipment Cleaning Procedures	3
1.8     Calculations	3
1.9     Quality Assurance/Quality Control	3
1.10     Data Validation	4
1.11     Health and Safety	4
2.0     DRUM SAMPLING: SOP #2009	
2.1     Scope and Application	5
2.2     Method Summary	5
2.3     Sample Preservation, Containers, Handling, and Storage	5
2.4     Interferences and Potential Problems	5
2.5     Equipment/Apparatus	6
2.5.1     Bung Wrench	6
2.5.2     Drum Deheader	6
2.5.3     Hand Pick, Pickaxe, and Hand Spike	6
2.5.4     Backhoe Spike	6
2.5.5     Hydraulic Drum Opener	6
2.5.6     Pneumatic Devices	6
2.6     Reagents	6
2.7     Procedures	7
2.7.1     Preparation	7
2.7.2     Drum Inspection	7
2.7.3     Drum Staging	7
2.7.4     Drum Opening	8
2.7.5     Drum Sampling	9
2.8     Calculations	11
2.9     Quality Assurance/Quality Control	11
2.10     Data Validation	11
2.11     Health and Safety	11

<u>Section</u>	<u>Page</u>
3.0 TANK SAMPLING: SOP #2010	
3.1 Scope and Application	13
3.2 Method Summary	13
3.3 Sample Preservation, Containers, Handling, and Storage	13
3.4 Interferences and Potential Problems	13
3.5 Equipment/Apparatus	14
3.6 Reagents	14
3.7 Procedures	14
3.7.1 Preparation	14
3.7.2 Preliminary Inspection	14
3.7.3 Sampling Procedures	15
3.7.4 Sampling Devices	15
3.8 Calculations	18
3.9 Quality Assurance/Quality Control	18
3.10 Data Validation	18
3.11 Health and Safety	18
4.0 CHIP, WIPE, AND SWEEP SAMPLING: SOP #2011	
4.1 Scope and Application	21
4.2 Method Summary	21
4.3 Sample Preservation, Containers, Handling, and Storage	21
4.4 Interferences and Potential Problems	21
4.5 Equipment/Apparatus	21
4.6 Reagents	22
4.7 Procedures	22
4.7.1 Preparation	22
4.7.2 Chip Sample Collection	22
4.7.3 Wipe Sample Collection	22
4.7.4 Sweep Sample Collection	23
4.8 Calculations	23
4.9 Quality Assurance/Quality Control	23
4.10 Data Validation	24
4.11 Health and Safety	24
5.0 WASTE PILE SAMPLING: SOP #2017	
5.1 Scope and Application	25
5.2 Method Summary	25
5.3 Sample Preservation, Containers, Handling, and Storage	25
5.4 Interferences and Potential Problems	25
5.5 Equipment/Apparatus	26
5.6 Reagents	26

<u>Section</u>	<u>Page</u>
5.7 Procedures	26
5.7.1 Preparation	26
5.7.2 Sample Collection	26
5.8 Calculations	29
5.9 Quality Assurance/Quality Control	29
5.10 Data Validation	29
5.11 Health and Safety	29
APPENDIX A - Drum Data Sheet Form	31
APPENDIX B - Figures	35
APPENDIX C - Calculations	51
REFERENCES	55

## List of Exhibits

<u>Exhibit</u>	<u>SOP</u>	<u>Page</u>
Table 1: Recommended Solvent Rinse for Soluble Contaminants	#2006	4
Drum Data Sheet Form	#2009	33
Figure 1: Univeral Bung Wrench	#2009	36
Figure 2: Drum Deheader	#2009	37
Figure 3: Hand Pick, Pickaxe, and Hand Spike	#2009	38
Figure 4: Backhoe Spike	#2009	39
Figure 5: Hydraulic Drum Opener	#2009	40
Figure 6: Pneumatic Bung Remover	#2009	41
Figure 7: Glass Thief	#2009	42
Figure 8: COLIWASA	#2009	43
Figure 9: Bacon Bomb Sampler	#2010	44
Figure 10: Sludge Judge	#2010	45
Figure 11: Subsurface Grab Sampler	#2010	46
Figure 12: Bailer	#2010	47
Figure 13: Sampling Augers	#2017	48
Figure 14: Sampling Trier	#2017	49
Figure 15: Grain Sampler	#2017	50
Calculation Sheet: Various Volume Calculations	#2010	52

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## 1.0 SAMPLING EQUIPMENT DECONTAMINATION: SOP #2006

### 1.1 SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) describes methods used for preventing or reducing cross-contamination, and provides general guidelines for sampling equipment decontamination procedures at a hazardous waste site. Preventing or minimizing cross-contamination in sampled media and in samples is important for preventing the introduction of error into sampling results and for protecting the health and safety of site personnel.

Removing or neutralizing contaminants that have accumulated on sampling equipment ensures protection of personnel from permeating substances, reduces or eliminates transfer of contaminants to clean areas, prevents the mixing of incompatible substances, and minimizes the likelihood of sample cross-contamination.

### 1.2 METHOD SUMMARY

Contaminants can be physically removed from equipment, or deactivated by sterilization or disinfection. Gross contamination of equipment requires physical decontamination, including abrasive and non-abrasive methods. These include the use of brushes, air and wet blasting, and high-pressure water cleaning, followed by a wash/rinse process using appropriate cleaning solutions. Use of a solvent rinse is required when organic contamination is present.

### 1.3 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

This section is not applicable to this SOP.

### 1.4 INTERFERENCES AND POTENTIAL PROBLEMS

- The use of distilled/deionized water commonly available from commercial vendors may be acceptable for decontamination of sampling equipment

provided that it has been verified by laboratory analysis to be analyte free.

- An untreated potable water supply is not an acceptable substitute for tap water. Tap water may be used from any municipal water treatment system for mixing of decontamination solutions.
- Acids and solvents utilized in the decontamination sequence pose the health and safety risks of inhalation or skin contact, and raise shipping concerns of permeation or degradation.
- The site work plan must address disposal of the spent decontamination solutions.
- Several procedures can be established to minimize contact with waste and the potential for contamination. For example:
  - Stress work practices that minimize contact with hazardous substances.
  - Use remote sampling, handling, and container-opening techniques when appropriate.
  - Cover monitoring and sampling equipment with protective material to minimize contamination.
  - Use disposable outer garments and disposable sampling equipment when appropriate.

### 1.5 EQUIPMENT/APPARATUS

- appropriate personal protective clothing
- non-phosphate detergent
- selected solvents
- long-handled brushes
- drop cloths/plastic sheeting
- trash container
- paper towels
- galvanized tubs or buckets
- tap water

- distilled/deionized water
- metal/plastic containers for storage and disposal of contaminated wash solutions
- pressurized sprayers for tap and deionized/distilled water
- sprayers for solvents
- trash bags
- aluminum foil
- safety glasses or splash shield
- emergency eyewash bottle

## 1.6 REAGENTS

There are no reagents used in this procedure aside from the actual decontamination solutions and solvents. In general, the following solvents are utilized for decontamination purposes:

- 10% nitric acid<sup>(1)</sup>
- acetone (pesticide grade)<sup>(2)</sup>
- hexane (pesticide grade)<sup>(2)</sup>
- methanol

<sup>(1)</sup> Only if sample is to be analyzed for trace metals.

<sup>(2)</sup> Only if sample is to be analyzed for organics.

## 1.7 PROCEDURES

As part of the health and safety plan, develop and set up a decontamination plan before any personnel or equipment enter the areas of potential exposure. The equipment decontamination plan should include:

- the number, location, and layout of decontamination stations
- which decontamination apparatus is needed
- the appropriate decontamination methods
- methods for disposal of contaminated clothing, apparatus, and solutions

### 1.7.1 Decontamination Methods

All personnel, samples, and equipment leaving the contaminated area of a site must be decontaminated. Various decontamination methods will either physically remove contaminants, inactivate contaminants by disinfection or sterilization, or do both.

In many cases, gross contamination can be removed by physical means. The physical decontamination techniques appropriate for equipment decontamination can be grouped into two categories: abrasive methods and non-abrasive methods.

### *Abrasive Cleaning Methods*

Abrasive cleaning methods work by rubbing and wearing away the top layer of the surface containing the contaminant. The following abrasive methods are available:

- **Mechanical:** Mechanical cleaning methods use brushes of metal or nylon. The amount and type of contaminants removed will vary with the hardness of bristles, length of brushing time, and degree of brush contact.
- **Air Blasting:** Air blasting is used for cleaning large equipment, such as bulldozers, drilling rigs or auger bits. The equipment used in air blast cleaning employs compressed air to force abrasive material through a nozzle at high velocities. The distance between the nozzle and the surface cleaned, as well as the pressure of air, the time of application, and the angle at which the abrasive strikes the surface, determines cleaning efficiency. Air blasting has several disadvantages: it is unable to control the amount of material removed, it can aerate contaminants, and it generates large amounts of waste.
- **Wet Blasting:** Wet blast cleaning, also used to clean large equipment, involves use of a suspended fine abrasive delivered by compressed air to the contaminated area. The amount of materials removed can be carefully controlled by using very fine abrasives. This method generates a large amount of waste.

### *Non-Abrasive Cleaning Methods*

Non-abrasive cleaning methods work by forcing the contaminant off of a surface with pressure. In general, less of the equipment surface is removed using non-abrasive methods. The following non-abrasive methods are available:



- **High-Pressure Water:** This method consists of a high-pressure pump, an operator-controlled directional nozzle, and a high pressure hose. Operating pressure usually ranges from 340 to 680 atmospheres (atm) which relates to flow rates of 20 to 140 liters per minute.
- **Ultra-High-Pressure Water:** This system produces a pressurized water jet (from 1,000 to 4,000 atm). The ultra-high-pressure spray removes tightly-adhered surface film. The water velocity ranges from 500 m/sec (1,000 atm) to 900 m/sec (4,000 atm). Additives can enhance the method. This method is not applicable for hand-held sampling equipment.

### *Disinfection/Rinse Methods*

- **Disinfection:** Disinfectants are a practical means of inactivating infectious agents.
- **Sterilization:** Standard sterilization methods involve heating the equipment. Sterilization is impractical for large equipment.
- **Rinsing:** Rinsing removes contaminants through dilution, physical attraction, and solubilization.

### **1.7.2 Field Sampling Equipment Cleaning Procedures**

Solvent rinses are not necessarily required when organics are not a contaminant of concern and may be eliminated from the sequence specified below. Similarly, an acid rinse is not required if analysis does not include inorganics.

1. Where applicable, follow physical removal procedures specified in section 1.7.1.
2. Wash equipment with a non-phosphate detergent solution.
3. Rinse with tap water.
4. Rinse with distilled/deionized water.
5. Rinse with 10% nitric acid if the sample will be analyzed for trace organics.

6. Rinse with distilled/deionized water.
7. Use a solvent rinse (pesticide grade) if the sample will be analyzed for organics.
8. Air dry the equipment completely.
9. Rinse again with distilled/deionized water.

Selection of the solvent for use in the decontamination process is based on the contaminants present at the site. Use of a solvent is required when organic contamination is present on-site. Typical solvents used for removal of organic contaminants include acetone, hexane, or water. An acid rinse step is required if metals are present on-site. If a particular contaminant fraction is not present at the site, the nine-step decontamination procedure listed above may be modified for site specificity. The decontamination solvent used should not be among the contaminants of concern at the site.

Table 1 on page 4 lists solvent rinses which may be required for elimination of particular chemicals. After each solvent rinse, the equipment should be air dried and rinsed with distilled/deionized water.

Sampling equipment that requires the use of plastic tubing should be disassembled and the tubing replaced with clean tubing, before commencement of sampling and between sampling locations.

## **1.8 CALCULATIONS**

This section is not applicable to this SOP.

## **1.9 QUALITY ASSURANCE/ QUALITY CONTROL**

One type of quality control sample specific to the field decontamination process is the rinsate blank. The rinsate blank provides information on the effectiveness of the decontamination process employed in the field. When used in conjunction with field blanks and trip blanks, a rinsate blank can detect contamination during sample handling, storage and sample transportation to the laboratory.

Table 1: Recommended Solvent Rinse for Soluble Contaminants

SOLVENT	SOLUBLE CONTAMINANTS
Water	<ul style="list-style-type: none"> <li>• Low-chain hydrocarbons</li> <li>• Inorganic compounds</li> <li>• Salts</li> <li>• Some organic acids and other polar compounds</li> </ul>
Dilute Acids	<ul style="list-style-type: none"> <li>• Basic (caustic) compounds</li> <li>• Amines</li> <li>• Hydrazines</li> </ul>
Dilute Bases -- for example, detergent and soap	<ul style="list-style-type: none"> <li>• Metals</li> <li>• Acidic compounds</li> <li>• Phenol</li> <li>• Thiols</li> <li>• Some nitro and sulfonic compounds</li> </ul>
Organic Solvents <sup>(1)</sup> - for example, alcohols, ethers, ketones, aromatics, straight-chain alkanes (e.g., hexane), and common petroleum products (e.g., fuel, oil, kerosene)	<ul style="list-style-type: none"> <li>• Nonpolar compounds (e.g., some organic compounds)</li> </ul>

<sup>(1)</sup> - WARNING: Some organic solvents can permeate and/or degrade protective clothing.

A rinsate blank consists of a sample of analyte-free (i.e, deionized) water which is passed over and through a field decontaminated sampling device and placed in a clean sample container.

Rinsate blanks should be run for all parameters of interest at a rate of 1 per 20 for each parameter, even if samples are not shipped that day. Rinsate blanks are not required if dedicated sampling equipment is used.

## 1.10 DATA VALIDATION

This section is not applicable to this SOP.

## 1.11 HEALTH AND SAFETY

When working with potentially hazardous materials, follow U.S. EPA, OSHA and specific health and safety procedures.

Decontamination can pose hazards under certain circumstances even though performed to protect

health and safety. Hazardous substances may be incompatible with decontamination methods. For example, the decontamination solution or solvent may react with contaminants to produce heat, explosion, or toxic products. Decontamination methods may be incompatible with clothing or equipment; some solvents can permeate or degrade protective clothing. Also, decontamination solutions and solvents may pose a direct health hazard to workers through inhalation or skin contact, or if they combust.

The decontamination solutions and solvents must be determined to be compatible before use. Any method that permeates, degrades, or damages personal protective equipment should not be used. If decontamination methods pose a direct health hazard, measures should be taken to protect personnel or the methods should be modified to eliminate the hazard.

## 2.0 DRUM SAMPLING: SOP #2009

### 2.1 SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to provide technical guidance on safe and cost-effective response actions at hazardous waste sites containing drums with unknown contents. Container contents are sampled and characterized for disposal, bulking, recycling, grouping, and/or classification purposes.

### 2.2 METHOD SUMMARY

Prior to sampling, drums must be inventoried, staged, and opened. An inventory entails recording visual qualities of each drum and any characteristics pertinent to the contents' classification. Staging involves the organization, and sometimes consolidation of drums which have similar wastes or characteristics. Opening of closed drums can be performed manually or remotely. Remote drum opening is recommended for worker safety. The most widely used method of sampling a drum involves the use of a glass thief. This method is quick, simple, relatively inexpensive, and requires no decontamination.

### 2.3 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Samples collected from drums are considered waste samples. No preservatives should be added since there is a potential reaction of the sample with the preservative. Samples should, however, be cooled to 4°C and protected from sunlight in order to minimize any potential reaction due to the light sensitivity of the sample.

Sample bottles for collection of waste liquids, sludges, or solids are typically wide-mouth amber jars with Teflon-lined screw caps. Actual volume required for analysis should be determined in conjunction with the laboratory performing the analysis.

Follow these waste sample handling procedures:

1. Place sample container in two Ziploc plastic bags.

2. Place each bagged container in a 1-gallon covered can containing absorbent packing material. Place the lid on the can.
3. Mark the sample identification number on the outside of the can.
4. Place the marked cans in a cooler, and fill remaining space with absorbent packing material.
5. Fill out chain of custody form for each cooler, place in plastic, and affix to inside lid of cooler.
6. Secure and custody seal the lid of cooler.
7. Arrange for the appropriate transportation mode consistent with the type of hazardous waste involved.

### 2.4 INTERFERENCES AND POTENTIAL PROBLEMS

The practice of tapping drums to determine their contents is neither safe nor effective and should not be used if the drums are visually overpressurized or if shock-sensitive materials are suspected. A laser thermometer may be used instead.

Drums that have been overpressurized, to the extent that the head is swollen several inches above the level of the chime, should not be moved. A number of devices have been developed for venting critically swollen drums. One method that has proven to be effective is a tube and spear device. A light aluminum tube (3 meters long) is positioned at the vapor space of the drum. A rigid, hooking device attached to the tube goes over the chime and holds the tube securely in place. The spear is inserted in the tube and positioned against the drum wall. A sharp blow on the end of the spear drives the sharpened tip through the drum and the gas vents along the grooves. The venting should be done from behind a wall or barricade. This device can be cheaply and easily designed and constructed where needed. Once the pressure has been relieved, the bung can be removed and the drum sampled.

## 2.5 EQUIPMENT/APPARATUS

The following are standard materials and equipment required for sampling:

- personal protection equipment
- wide-mouth glass jars with Teflon cap liner, approximately 500 mL volume
- uniquely numbered sample identification labels with corresponding data sheets
- 1-gallon covered cans half-filled with absorbent (vermiculite)
- chain of custody forms
- decontamination materials
- glass thief tubes or Composite Liquid Waste Samplers (COLIWASA)
- laser thermometer
- drum opening devices

Drum opening devices include the following:

### 2.5.1 Bung Wrench

A common method for opening drums manually is using a universal bung wrench. These wrenches have fittings made to remove nearly all commonly encountered bungs. They are usually constructed of cast iron, brass, or a bronze-beryllium, non-sparking alloy formulated to reduce the likelihood of sparks. The use of a non-sparking bung wrench does not completely eliminate the possibility of a spark being produced. (See Figure 1, Appendix B.)

### 2.5.2 Drum Deheader

When a bung is not removable with a bung wrench, a drum can be opened manually by using a drum deheader. This tool is constructed of forged steel with an alloy steel blade and is designed to cut the lid of a drum off or part way off by means of a scissors-like cutting action. A limitation of this device is that it can be attached only to closed head drums. Drums with removable heads must be opened by other means. (See Figure 2, Appendix B.)

### 2.5.3 Hand Pick, Pickaxe, and Hand Spike

These tools are usually constructed of brass or a non-sparking alloy with a sharpened point that can penetrate the drum lid or head when the tool is swung. The hand picks or pickaxes that are most

commonly used are commercially available; whereas the spikes are generally uniquely fabricated 4-foot long poles with a pointed end. (See Figure 3, Appendix B.)

### 2.5.4 Backhoe Spike

The most common means used to open drums remotely for sampling is the use of a metal spike attached or welded to a backhoe bucket. In addition to being very efficient, this method can greatly reduce the likelihood of personal exposure. (See Figure 4, Appendix B.)

### 2.5.5 Hydraulic Drum Opener

Another remote method for opening drums is with remotely operated hydraulic devices. One such device uses hydraulic pressure to pierce through the wall of a drum. It consists of a manually operated pump which pressurizes soil through a length of hydraulic line. (See Figure 5, Appendix B.)

### 2.5.6 Pneumatic Devices

A pneumatic bung remover consists of a compressed air supply that is controlled by a heavy-duty, two-stage regulator. A high-pressure air line of desired length delivers compressed air to a pneumatic drill, which is adapted to turn a bung fitting selected to fit the bung to be removed. An adjustable bracketing system has been designed to position and align the pneumatic drill over the bung. This bracketing system must be attached to the drum before the drill can be operated. Once the bung has been loosened, the bracketing system must be removed before the drum can be sampled. This remote bung opener does not permit the slow venting of the container, and therefore appropriate precautions must be taken. It also requires the container to be upright and relatively level. Bungs that are rusted shut cannot be removed with this device. (See Figure 6, Appendix B.)

## 2.6 REAGENTS

Reagents are not typically required for preserving drum samples. However, reagents are used for decontaminating sampling equipment. Decontamination solutions are specified in ERT SOP #2006, Sampling Equipment Decontamination.

## 2.7 PROCEDURES

### 2.7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and which equipment and supplies are needed.
2. Obtain necessary sampling and monitoring equipment.
3. Decontaminate or preclean equipment, and ensure that it is in working order.
4. Prepare scheduling and coordinate with staff, clients, and regulatory agency, if appropriate.
5. Perform a general site survey prior to site entry in accordance with the site-specific health and safety plan.
6. Use stakes, flagging, or buoys to identify and mark all sampling locations. If required, the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions.

### 2.7.2 Drum Inspection

Appropriate procedures for handling drums depend on the contents. Thus, prior to any handling, drums should be visually inspected to gain as much information as possible about their contents. Those in charge of inspections should be on the look-out for:

- drum condition, corrosion, rust, and leaking contents
- symbols, words, or other markings on the drum indicating hazards (i.e., explosive, radioactive, toxic, flammable)
- signs that the drum is under pressure
- shock sensitivity

Monitor around the drums with radiation instruments, organic vapor monitors (OVA) and combustible gas indicators (CGI).

Classify the drums into categories, for instance:

- radioactive
- leaking/deteriorating
- bulging
- drums containing lab packs
- explosive/shock sensitive

All personnel should assume that unmarked drums contain hazardous materials until their contents have been categorized, and that labels on drums may not accurately describe their contents.

If it is presumed that there are buried drums on-site, geophysical investigation techniques such as magnetometry, ground penetrating radar, and metal detection can be employed in an attempt to determine depth and location of the drums. See ERT SOP #2159, General Surface Geophysics.

### 2.7.3 Drum Staging

Prior to sampling, the drums should be staged to allow easy access. Ideally, the staging area should be located just far enough from the drum opening area to prevent a chain reaction if one drum should explode or catch fire when opened.

While staging, physically separate the drums into the following categories: those containing liquids, those containing solids, lab packs, or gas cylinders, and those which are empty. This is done because the strategy for sampling and handling drums/containers in each of these categories will be different. This may be achieved by:

- Visual inspection of the drum and its labels, codes, etc. Solids and sludges are typically disposed of in open-top drums. Closed-head drums with a bung opening generally contain liquid.
- Visual inspection of the contents of the drum during sampling followed by restaging, if needed.

Once a drum has been excavated and any immediate hazard has been eliminated by overpacking or transferring the drum's contents, affix a numbered tag to the drum and transfer it to a staging area. Color-coded tags, labels, or bands should be used to mark similar waste types. Record a description of each drum, its condition, any unusual markings, and the location where it was buried or stored, on a drum data sheet (Appendix A). This data sheet becomes the principal

recordkeeping tool for tracking the drum onsite.

Where there is good reason to suspect that some drums contain radioactive, explosive, and shock-sensitive materials, these drums should be staged in a separate, isolated area. Placement of explosives and shock-sensitive materials in diked and fenced areas will minimize the hazard and the adverse effects of any premature detonation of explosives.

Where space allows, the drum opening area should be physically separated from the drum removal and drum staging operations. Drums are moved from the staging area to the drum opening area one at a time using forklift trucks equipped with drum grabbers or a barrel grapppler. In a large-scale drum handling operation, drums may be conveyed to the drum opening area using a roller conveyor.

### 2.7.4 Drum Opening

There are three basic techniques available for opening drums at hazardous waste sites:

- Manual opening with non-sparking bung wrenches,
- Drum deheading, and
- Remote drum puncturing or bung removal.

The choice of drum opening techniques and accessories depends on the number of drums to be opened, their waste contents, and physical condition. Remote drum opening equipment should always be considered in order to protect worker safety. Under OSHA 1910.120, manual drum opening with bung wrenches or deheaders should be performed only with structurally sound drums having contents that are known to be (1) not shock sensitive, (2) non-reactive, (3) non-explosive, and (4) non-flammable.

#### *Manual Drum Opening with a Bung Wrench*

Manual drum opening with bung wrenches (Figure 1, Appendix B) should not be performed unless the drums are structurally sound (no evidence of bulging or deformation) and their contents are known to be non-explosive. If opening the drum with bung wrenches is deemed reasonably cost-effective and safe, then follow these procedures to minimize the hazard:

1. Fully outfit field personnel with protective gear.
2. Position drum upright with the bung up, or, for drums with bungs on the side, lay the drum on its side with the bung plug up.
3. Wrench the bung with a slow, steady pulling motion across the drum. If the length of the bung wrench handle provides inadequate leverage for unscrewing the plug, attach a "cheater bar" to the handle to improve leverage.

#### *Manual Drum Opening with a Drum Deheader*

Drums are opened with a drum deheader (Figure 2, Appendix B) by first positioning the cutting edge just inside the top chime and then tightening the adjustment screw so that the deheader is held against the side of the drum. Moving the handle of the deheader up and down while sliding the deheader along the chime will cut off the entire top. If the top chime of a drum has been damaged or badly dented, it may not be possible to cut off the entire top. Since there is always the possibility that a drum may be under pressure, make the initial cut very slowly to allow for the gradual release of any built-up pressure. A safer technique would be to use a remote method to puncture the drum prior to using the deheader.

Self-propelled drum openers which are either electrically or pneumatically driven can be used for quicker and more efficient deheading.

#### *Manual Drum Opening with a Hand Pick, Pickaxe, or Spike*

When a drum must be opened and neither a bung wrench nor a drum deheader is suitable, the drum can be opened for sampling by using a hand pick, pickaxe, or spike (Figure 3, Appendix B). Often the drum lid or head must be hit with a great deal of force in order to penetrate it. The potential for splash or spraying is greater than with other opening methods and, therefore, this method of drum opening is not recommended, particularly when opening drums containing liquids. Some spikes used have been modified by the addition of a circular splash plate near the penetrating end. This plate acts as a shield and reduces the amount of splash in the direction of the person using the spike. Even with this shield, good splash gear is essential.

Since drums cannot be opened slowly with these tools, spray from drums is common requiring appropriate safety measures. Decontaminate the pick or spike after each drum is opened to avoid cross-contamination and/or adverse chemical reaction from incompatible materials.

### *Remote Drum Opening with a Backhoe Spike*

Remotely operated drum opening tools are the safest available means of drum opening. Remote drum opening is slow, but is much safer compared to manual methods of opening.

Drums should be "staged" or placed in rows with adequate aisle space to allow ease in backhoe maneuvering. Once staged, the drums can be quickly opened by punching a hole in the drum head or lid with the spike.

The spike (Figure 4, Appendix B) should be decontaminated after each drum is opened to prevent cross-contamination. Even though some splash or spray may occur when this method is used, the operator of the backhoe can be protected by mounting a large shatter-resistant shield in front of the operator's cage. This, combined with the required level of personal protection gear, should be sufficient to protect the operator. Additional respiratory protection can be afforded by providing the operator with an on-board airline system.

### *Remote Drum Opening with Hydraulic Devices*

A piercing device with a metal point is attached to the end of a hydraulic line and is pushed into the drum by hydraulic pressure (Figure 5, Appendix B). The piercing device can be attached so that the sampling hole can be made on either the side or the head of the drum. Some of the metal piercers are hollow or tube-like so that they can be left in place if desired and serve as a permanent tap or sampling port. The piercer is designed to establish a tight seal after penetrating the container.

### *Remote Drum Opening with Pneumatic Devices*

Pneumatically-operated devices utilizing compressed air have been designed to remove drum bungs remotely (Figure 6, Appendix B).

## **2.7.5 Drum Sampling**

After the drum has been opened, monitor headspace gases using an explosimeter and organic vapor analyzer. In most cases it is impossible to observe the contents of these sealed or partially sealed vessels. Since some layering or stratification is likely in any solution left undisturbed over time, take a sample that represents the entire depth of the vessel.

When sampling a previously sealed vessel, check for the presence of a bottom sludge. This is easily accomplished by measuring the depth to the apparent bottom, then comparing it to the known interior depth.

### *Glass Thief Sampler*

The most widely used implement for sampling is a glass tube commonly referred to as a glass thief (Figure 7, Appendix B). This tool is simple, cost effective, quick, and collects a sample without having to decontaminate. Glass thieves are typically 6mm to 16mm I.D. and 48 inches long.

Procedures for using a glass thief are as follows:

1. Remove cover from sample container.
2. Insert glass tubing almost to the bottom of the drum or until a solid layer is encountered. About one foot of tubing should extend above the drum.
3. Allow the waste in the drum to reach its natural level in the tube.
4. Cap the top of the sampling tube with a tapered stopper or thumb, ensuring liquid does not come into contact with stopper.
5. Carefully remove the capped tube from the drum and insert the uncapped end in the sample container.
6. Release stopper and allow the glass thief to drain until the container is approximately 2/3 full.
7. Remove tube from the sample container, break it into pieces and place the pieces in the drum.

8. Cap the sample container tightly and place pre-labeled sample container in a carrier.
9. Replace the bung or place plastic over the drum.
10. Log all samples in the site logbook and on field data sheets.
11. Package samples and complete necessary paperwork.
12. Transport sample to decontamination zone to prepare it for transport to the analytical laboratory.

In many instances a drum containing waste material will have a sludge layer on the bottom. Slow insertion of the sample tube down into this layer and then a gradual withdrawal will allow the sludge to act as a bottom plug to maintain the fluid in the tube. The plug can be gently removed and placed into the sample container by the use of a stainless steel lab spoon.

It should be noted that in some instances disposal of the tube by breaking it into the drum may interfere with eventual plans for the removal of its contents. This practice should be cleared with the project officer or other disposal techniques evaluated.

### *COLIWASA Sampler*

Some equipment is designed to collect a sample from the full depth of a drum and maintain it in the transfer tube until delivery to the sample bottle. These designs include primarily the Composite Liquid Waste Sampler (COLIWASA) and modifications thereof. The COLIWASA (Figure 8, Appendix B) is a much cited sampler designed to permit representative sampling of multiphase wastes from drums and other containerized wastes. One configuration consists of a 152 cm by 4 cm I.D. section of tubing with a neoprene stopper at one end attached by a rod running the length of the tube to a locking mechanism at the other end.

Manipulation of the locking mechanism opens and closes the sampler by raising and lowering the neoprene stopper. One model of the COLIWASA is shown in Appendix B; however, the design can be modified and/or adapted somewhat to meet the needs of the sampler.

The major drawbacks associated with using a COLIWASA concern decontamination and costs. The sampler is difficult, if not impossible to decontaminate in the field and its high cost in relation to alternative procedures (glass tubes) make it an impractical throwaway item. It still has applications, however, especially in instances where a true representation of a multiphase waste is absolutely necessary.

Follow these procedures for using the COLIWASA:

1. Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
2. Slowly lower the sampler into the liquid waste. Lower the sampler at a rate that permits the levels of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sample tube is lower than that outside the sampler, the sampling rate is too fast and will result in a non-representative sample.
3. When the sampler stopper hits the bottom of the waste container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
4. Slowly withdraw the sample from the waste container with one hand while wiping the sampler tube with a disposable cloth or rag with the other hand.
5. Carefully discharge the sample into a suitable sample container by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in a sample container.
6. Cap the sample container tightly and place pre-labeled sample container in a carrier.
7. Replace the bung or place plastic over the drum.
8. Log all samples in the site logbook and on field data sheets.



9. Package samples and complete necessary paperwork.

10. Transport sample to decontamination zone to prepare it for transport to the analytical laboratory.

## **2.8 CALCULATIONS**

This section is not applicable to this SOP.

## **2.9 QUALITY ASSURANCE/ QUALITY CONTROL**

The following general quality assurance procedures apply:

- Document all data on standard chain of custody forms, field data sheets, or within site logbooks.
- Operate all instrumentation in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation, and they must be documented.

## **2.10 DATA VALIDATION**

This section is not applicable to this SOP.

## **2.11 HEALTH AND SAFETY**

When working with potentially hazardous materials, follow U.S. EPA, OSHA, and specific health and safety procedures.

The opening of closed containers is one of the most hazardous site activities. Maximum efforts should be made to ensure the safety of the sampling team. Proper protective equipment and a general awareness of the possible dangers will minimize the risk inherent in sampling operations. Employing proper drum-opening techniques and equipment will also safeguard personnel. Use remote sampling equipment whenever feasible.

## 3.0 TANK SAMPLING: SOP #2010

### 3.1 SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to provide protocols for sampling tanks and other confined spaces from outside the vessel.

### 3.2 METHOD SUMMARY

The safe collection of a representative sample should be the criterion for selecting sample locations. A representative sample can be collected using techniques or equipment that are designed for obtaining liquids or sludges from various depths. The structure and characteristics of storage tanks present problems with collection of samples from more than one location; therefore, the selection of sampling devices is an important consideration.

Depending on the type of vessel and characteristics of the material to be sampled, one can choose a bailer, glass thief, bacon bomb sampler, sludge judge, COLIWASA, or subsurface grab sampler to collect the sample. For depths of less than 5-feet, a bailer, COLIWASA, or sludge judge can be used. A sludge judge, subsurface grab sampler, bailer, or bacon bomb sampler can be used for depths greater than 5-feet. A sludge judge or bacon bomb can be used to determine if the tank consists of various strata.

All sample locations should be surveyed for air quality prior to sampling. At no time should sampling continue with an LEL reading greater than 25%.

All personnel involved in tank sampling should be advised as to the hazards associated with working in unfavorable conditions.

### 3.3 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Samples collected from tanks are considered waste samples and, as such, addition of preservatives is not required due to the potential reaction of the sample with the preservative. Samples should,

however, be cooled to 4°C and protected from sunlight in order to minimize any potential reaction due to the light sensitivity of the sample.

Sample bottles for collection of waste liquids, sludges, or solids are typically wide-mouth amber jars with Teflon-lined screw caps. Actual volume required for analysis should be determined in conjunction with the laboratory performing the analysis.

Waste sample handling procedures should be as follows:

1. Place sample container in two Ziploc plastic bags.
2. Place each bagged container in a 1-gallon covered can containing absorbent packing material. Place the lid on the can.
3. Mark the sample identification number on the outside of the can.
4. Place the marked cans in a cooler, and fill remaining space with absorbent packing material.
5. Fill out a chain of custody form for each cooler, place it in plastic, and affix it to the inside lid of the cooler.
6. Secure and custody seal the lid of cooler.
7. Arrange for the transportation appropriate for the type of hazardous waste involved.

### 3.4 INTERFERENCES AND POTENTIAL PROBLEMS

Sampling a storage tank requires a great deal of manual dexterity, often requiring the sampler to climb to the top of the tank upon a narrow vertical or spiral stairway or ladder while wearing protective clothing and carrying sampling equipment.

Before climbing onto the vessel, perform a structural survey of the tank to ensure the sampler's

safety and accessibility prior to initiating field activities.

As in all opening of containers, take extreme caution to avoid ignition or combustion of volatile contents. All tools used must be constructed of a non-sparking material and electronic instruments must be intrinsically safe.

All sample locations should be surveyed for air quality prior to sampling. At no time should sampling continue with an LEL reading greater than 25%.

### 3.5 EQUIPMENT/APPARATUS

Storage tank materials include liquids, sludges, still bottoms, and solids of various structures. The type of sampling equipment chosen should be compatible with the waste. Samplers commonly used for tanks include: the bacon bomb sampler, the sludge judge, glass thief, bailer, COLIWASA, and subsurface grab sampler.

- sampling plan
- safety equipment
- tape measure
- weighted tape line or equivalent
- camera/film
- stainless steel bucket or bowl
- sample containers
- Ziploc plastic bags
- logbook
- labels
- field data sheets
- chain of custody forms
- flashlight (explosion proof)
- coolers
- ice
- decontamination supplies
- bacon bomb sampler
- sludge judge
- glass thief
- bailer
- COLIWASA
- subsurface grab sampler
- water/oil level indicator
- OVA (organic vapor analyzer or equivalent)
- explosimeter/oxygen meter
- high volume blower

### 3.6 REAGENTS

Reagents are not typically required for the preservation of waste samples. However, reagents will be utilized for decontamination of equipment. Decontamination solutions required are specified in ERT SOP #2006, Sampling Equipment Decontamination.

### 3.7 PROCEDURES

#### 3.7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and which equipment and supplies are needed.
2. Obtain necessary sampling and monitoring equipment.
3. Decontaminate or preclean equipment, and ensure that it is in working order.
4. Prepare scheduling and coordinate with staff, clients, and regulatory agency, if appropriate.
5. Perform a general site survey prior to site entry in accordance with the site-specific health and safety plan.
6. Identify and mark all sampling locations.

#### 3.7.2 Preliminary Inspection

1. Inspect the external structural characteristics of each tank and record in the site logbook. Potential sampling points should be evaluated for safety, accessibility, and sample quality.
2. Prior to opening a tank for internal inspection, the tank sampling team should:
  - Review safety procedures and emergency contingency plans with the Safety Officer,
  - Ensure that the tank is properly grounded,
  - Remove all sources of ignition from the immediate area.
3. Each tank should be mounted using appropriate means. Remove manway covers using non-sparking tools.

4. Collect air quality measurements for each potential sample location using an explosimeter/oxygen meter for a lower explosive limit (LEL/O<sub>2</sub>) reading and an OVA/HNU for an organic vapor concentration. Both readings should be taken from the tank headspace, above the sampling port, and in the breathing zone.
5. Prior to sampling, the tank headspace should be cleared of any toxic or explosive vapor concentration using a high volume blower. No work should start if LEL readings exceed 25%. At 10% LEL, work can continue but with extreme caution.

### 3.7.3 Sampling Procedures

1. Determine the depth of any and all liquid-solid interface, and depth of sludge using a weighted tape measure, probe line, sludge judge, or equivalent.
2. Collect liquid samples from 1-foot below the surface, from mid-depth of liquid, and from 1-foot above the bottom sludge layer. This can be accomplished with a subsurface grab sampler or bacon bomb. For liquids less than 5-feet in depth, use a glass thief or COLIWASA to collect the sample.

If sampling storage tanks, vacuum trucks, or process vessels, collect at least one sample from each compartment in the tank. Samples should always be collected through an opened hatch at the top of the tank. Valves near the bottom should not be used, because of their questionable or unknown integrity. If such a valve cannot be closed once opened, the entire tank contents may be lost to the ground surface. Also, individual strata cannot be sampled separately through a valve near the bottom.

3. Compare the three samples for visual phase differences. If phase differences appear, systematic iterative sampling should be performed. By halving the distance between two discrete sampling points, one can determine the depth of the phase change.
4. If another sampling port is available, sample as above to verify the phase information.

5. Measure the outside diameter of the tank and determine the volume of wastes using the depth measurements. (See Appendix C for calculations.)
6. Sludges can be collected using a bacon bomb sampler, glass thief, or sludge judge.
7. Record all information on the sample data sheet or site logbook. Label the container with the appropriate sample tag.
8. Decontaminate sampling equipment as per ERT SOP #2006, Sampling Equipment Decontamination.

### 3.7.4 Sampling Devices

#### *Bacon Bomb Sampler*

The bacon bomb sampler (Figure 9, Appendix B) is designed to collect material from various levels within a storage tank. It consists of a cylindrical body, usually made of chrome-plated brass and bronze with an internal tapered plunger that acts as a valve to admit the sample. A line attached to the top of the plunger opens and closes the valve. A line is attached to the removable top cover which has a locking mechanism to keep the plunger closed after sampling.

1. Attach the sample line and the plunger line to the sampler.
2. Measure and then mark the sampling line at the desired depth.
3. Gradually lower the bacon bomb sampler by the sample line until the desired level is reached.
4. When the desired level is reached, pull up on the plunger line and allow the sampler to fill before releasing the plunger line to seal off the sampler.
5. Retrieve the sampler by the sample line. Be careful not to pull up on the plunger line and thereby prevent accidental opening of the bottom valve.
6. Rinse or wipe off the exterior of the sampler body.

7. Position the sampler over the sample container and release its contents by pulling up on the plunger line.
8. Cap the sample container tightly and place prelabeled sample container in a carrier.
9. Replace the bung or place plastic over the tank.
10. Log all samples in the site logbook and on field data sheets and label all samples.
11. Package samples and complete necessary paperwork.
12. Transport sample to decontamination zone to prepare it for transport to the analytical laboratory.

### *Sludge Judge*

A sludge judge (Figure 10, Appendix B) is used for obtaining an accurate reading of solids which can settle, in any liquid, to any depth. The sampler consists of 3/4-inch plastic pipe in 5-foot sections, marked at 1-foot increments, with screw-style fittings. The top section includes a nylon line for raising the sampler.

1. Lower the sludge judge to the bottom of the tank.
2. When the bottom has been reached, and the pipe has filled to surface level, tug slightly on the rope as you begin to raise the unit. This will seat the check valve, trapping the column of material.
3. When the unit has been raised clear of the tank liquid, the amount of sludge in the sample can be read using the 1-foot increments marked on the pipe sections.
4. By touching the pin extending from the bottom section against a hard surface, the material is released from the unit.
5. Cap the sample container tightly and place prelabeled sample container in a carrier.
6. Replace the bung or place plastic over the tank.
7. Log all samples in the site logbook and on field data sheets and label all samples.

8. Package samples and complete necessary paperwork.
9. Transport sample to decontamination zone to prepare it for transport to the analytical laboratory.

### *Subsurface Grab Sampler*

Subsurface grab samplers (Figure 11, Appendix B) are designed to collect samples of liquids at various depths. The sampler is usually constructed of aluminum or stainless steel tubing with a polypropylene or Teflon head that attaches to a 1-liter sample container.

1. Screw the sample bottle onto the sampling head.
2. Lower the sampler to the desired depth.
3. Pull the ring at the top which opens the spring-loaded plunger in the head assembly.
4. When the bottle is full, release the ring, lift sampler, and remove sample bottle.
5. Cap the sample container tightly and place prelabeled sample container in a carrier.
6. Replace the bung or place plastic over the tank.
7. Log all samples in the site logbook and on field data sheets and label all samples.
8. Package samples and complete necessary paperwork.
9. Transport sample to decontamination zone to prepare it for transport to the analytical laboratory.

### *Glass Thief*

The most widely used implement for sampling is a glass tube commonly referred to as a glass thief (Figure 7, Appendix B). This tool is simple, cost effective, quick, and collects a sample without having to decontaminate. Glass thieves are typically 6mm to 16mm I.D. and 48 inches long.

1. Remove cover from sample container.
2. Insert glass tubing almost to the bottom of the

tank or until a solid layer is encountered. About 1 foot of tubing should extend above the tank.

3. Allow the waste in the tank to reach its natural level in the tube.
4. Cap the top of the sampling tube with a tapered stopper or thumb, ensuring liquid does not come into contact with stopper.
5. Carefully remove the capped tube from the tank and insert the uncapped end in the sample container. Do not spill liquid on the outside of the sample container.
6. Release stopper and allow the glass thief to drain until the container is approximately 2/3 full.
7. Remove tube from the sample container, break it into pieces and place the pieces in the tank.
8. Cap the sample container tightly and place prelabeled sample container in a carrier.
9. Replace the bung or place plastic over the tank.
10. Log all samples in the site logbook and on field data sheets and label all samples.
11. Package samples and complete necessary paperwork.
12. Transport sample to decontamination zone to prepare it for transport to the analytical laboratory.

In many instances a tank containing waste material will have a sludge layer on the bottom. Slow insertion of the sample tube down into this layer and then a gradual withdrawal will allow the sludge to act as a bottom plug to maintain the fluid in the tube. The plug can be gently removed and placed into the sample container by the use of a stainless steel lab spoon.

### *Bailer*

The positive-displacement volatile sampling bailer (manufactured by GPI or equivalent) (Figure 12, Appendix B) is perhaps the most appropriate for collecting water samples for volatile analysis. Other bailer types (messenger, bottom fill, etc.) are less

desirable, but may be mandated by cost and site conditions. Generally, bailers can provide an acceptable sample, providing that the sampling personnel use extra care in the collection process.

1. Make sure clean plastic sheeting surrounds the tank.
2. Attach a line to the bailer.
3. Lower the bailer slowly and gently into the tank so as not to splash the bailer into the tank contents.
4. Allow the bailer to fill completely and retrieve the bailer from the tank.
5. Begin slowly pouring from the bailer.
6. Cap the sample container tightly and place prelabeled sample container in a carrier.
7. Replace the bung or place plastic over the tank.
8. Log all samples in the site logbook and on field data sheets and label all samples.
9. Package samples and complete necessary paperwork.
10. Transport sample to decontamination zone to prepare it for transport to an analytical laboratory.

### *COLIWASA*

Some equipment is designed to collect a sample from the full depth of a tank and maintain it in the transfer tube until delivery to the sample bottle. These designs include primarily the Composite Liquid Waste Sampler (COLIWASA) (Figure 8, Appendix B) and modifications thereof. The COLIWASA is a much cited sampler designed to permit representative sampling of multiphase wastes from tanks and other containerized wastes. One configuration consists of a 152 cm by 4 cm I.D. section of tubing with a neoprene stopper at one end attached by a rod running the length of the tube to a locking mechanism at the other end. Manipulation of the locking mechanism opens and closes the sampler by raising and lowering the neoprene stopper.

The major drawbacks associated with using a COLIWASA concern decontamination and costs. The sampler is difficult if not impossible to decontaminate in the field and its high cost in relation to alternative procedures (glass tubes) make it an impractical throwaway item. It still has applications, however, especially in instances where a true representation of a multiphase waste is absolutely necessary.

1. Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
2. Slowly lower the sampler into the liquid waste. Lower the sampler at a rate that permits the levels of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sample tube is lower than that outside the sampler, the sampling rate is too fast and will result in a non-representative sample.
3. When the sampler stopper hits the bottom of the waste container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
4. Slowly withdraw the sample from the waste container with one hand while wiping the sampler tube with a disposable cloth or rag with the other hand.
5. Carefully discharge the sample into a suitable sample container by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in a sample container.
6. Cap the sample container tightly and place prelabeled sample container in a carrier.
7. Replace the bung or place plastic over the tank.
8. Log all samples in the site logbook and on field data sheets and label all samples.
9. Package samples and complete necessary paperwork.
10. Transport sample to decontamination zone to

prepare it for transport to the analytical laboratory.

### **3.8 CALCULATIONS**

Refer to Appendix C for calculations to determine tank volumes.

### **3.9 QUALITY ASSURANCE/ QUALITY CONTROL**

There are no specific quality assurance activities which apply to the implementation of these procedures. However, the following general QA procedures apply:

- All data must be documented on field data sheets or within site logbooks.
- All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation and they must be documented.

### **3.10 DATA VALIDATION**

This section is not applicable to this SOP.

### **3.11 HEALTH AND SAFETY**

When working with potentially hazardous materials, follow U.S. EPA, OSHA, and specific health and safety procedures. More specifically, the hazards associated with tank sampling may cause bodily injury, illness, or death to the worker. Failure to recognize potential hazards of waste containers is the cause of most accidents. It should be assumed that the most unfavorable conditions exist, and that the danger of explosion and poisoning will be present. Hazards specific to tank sampling are:

- Hazardous atmospheres can be flammable, toxic, asphyxiating, or corrosive.
- If activating electrical or mechanical equipment would cause injury, each piece of equipment should be manually isolated

to prevent inadvertent activation while workers are occupied.

- Communication is of utmost importance between the sampling worker and the standby person to prevent distress or injury going unnoticed. The Illuminating Engineers Society Lighting Handbook requires suitable illumination to provide sufficient visibility for work.
- Noise reverberation may disrupt verbal communication with standby personnel.

- Tank vibration may affect multiple body parts and organs of the sampler depending on vibration characteristics.
- General hazards include falling scaffolding, surface residues (which could cause electrical shock, incompatible material reactions, slips, or falls), and structural objects (including baffles/trays in horizontal/vertical tanks, and overhead structures).



## 4.0 CHIP, WIPE, AND SWEEP SAMPLING: SOP #2011

### 4.1 SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) outlines the recommended protocol and equipment for collection of representative chip, wipe, and sweep samples to monitor potential surficial contamination.

This method of sampling is appropriate for surfaces contaminated with non-volatile species of analytes (i.e., PCB, PCDD, PCDF, metals, cyanide, etc.) Detection limits are analyte specific. Sample size should be determined based upon the detection limit desired and the amount of sample requested by the analytical laboratory. Typical sample area is 1 square foot. However, based upon sampling location, the area may need modification due to area configuration.

### 4.2 METHOD SUMMARY

Since surface situations vary widely, no universal sampling method can be recommended. Rather, the method and implements used must be tailored to suit a specific sampling site. The sampling location should be selected based upon the potential for contamination as a result of manufacturing processes or personnel practices.

Chip sampling is appropriate for porous surfaces and is generally accomplished with either a hammer and chisel, or an electric hammer. The sampling device should be laboratory cleaned and wrapped in clean, autoclaved aluminum foil until ready for use. To collect the sample, a measured and marked off area is chipped both horizontally and vertically to an even depth of 1/8 inch. The sample is then transferred to the proper sample container.

Wipe samples are collected from smooth surfaces to indicate surficial contamination; a sample location is measured and marked off. Sampling personnel wear a new pair of surgical gloves to open a sterile gauze pad, and then soak it with solvent. The solvent used is dependent on the surface being sampled. This pad is then stroked firmly over the sample surface, first vertically, then horizontally, to ensure complete coverage. The pad is then transferred to the sample container.

Sweep sampling is an effective method for the collection of dust or residue on porous or non-porous surfaces. To collect such a sample, an appropriate area is measured off. Then, while wearing a new pair of disposable surgical gloves, sampling personnel use a dedicated brush to sweep material into a dedicated dust pan. The sample is then transferred to the proper sample container.

Samples collected by all three methods are sent to the laboratory for analysis.

### 4.3 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Samples should be stored out of direct sunlight to reduce photodegradation and shipped on ice (4°C) to the laboratory performing the analysis. Appropriately-sized, laboratory-cleaned, glass sample jars should be used for sample collection. The amount of sample required is determined in concert with the analytical laboratory.

### 4.4 INTERFERENCES AND POTENTIAL PROBLEMS

This method has few significant interferences or problems. Typical problems result from rough porous surfaces which may be difficult to wipe, chip, or sweep.

### 4.5 EQUIPMENT/APPARATUS

- lab-clean sample containers of proper size and composition
- field and travel blanks
- site logbook
- sample analysis request forms
- chain of custody forms
- custody seals
- sample labels
- disposable surgical gloves
- sterile wrapped gauze pad (3 in. x 3 in.)
- appropriate pesticide (HPLC) grade solvent

- medium-sized, laboratory-cleaned paint brush
- medium-sized, laboratory-cleaned chisel
- autoclaved aluminum foil
- camera
- hexane (pesticide/HPLC grade)
- iso-octane
- distilled/deionized water

## 4.6 REAGENTS

Reagents are not required for preservation of chip, wipe or sweep samples. However, reagents will be utilized for decontamination of sampling equipment. Decontamination solutions are specified in ERT SOP #2006, Sampling Equipment Decontamination.

## 4.7 PROCEDURES

### 4.7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and the types and amounts of equipment and supplies needed.
2. Obtain necessary sampling and monitoring equipment.
3. Decontaminate or preclean equipment, and ensure that it is in working order.
4. Prepare scheduling and coordinate with staff, clients, and regulatory agencies, if appropriate.
5. Perform a general site survey prior to site entry in accordance with the site-specific health and safety plan.
6. Mark all sampling locations. If required, the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions.

### 4.7.2 Chip Sample Collection

Sampling of porous surfaces is generally accomplished by using a chisel and hammer or electric hammer. The sampling device should be laboratory cleaned or field decontaminated as per ERT SOP# 2006, Sampling Equipment Decontamination. It is then wrapped in cleaned,

autoclaved aluminum foil. The sampler should remain in this wrapping until it is needed. Each sampling device should be used for only one sample.

1. Choose appropriate sampling points; measure off the designated area and photo document.
2. To facilitate later calculations, record surface area to be chipped.
3. Don a new pair of disposable surgical gloves.
4. Open a laboratory-cleaned chisel or equivalent sampling device.
5. Chip the sample area horizontally, then vertically to an even depth of approximately 1/8 inch.
6. Place the sample in an appropriately-prepared sample container with a Teflon-lined cap.
7. Cap the sample container, attach the label and custody seal, and place in a double plastic bag. Record all pertinent data in the site logbook. Complete the sampling analysis request form and chain of custody form before taking the next sample.
8. Store samples out of direct sunlight and cool to 4°C.
9. Leave contaminated sampling device in the sampled material, unless decontamination is practical.
10. Follow proper decontamination procedures, then deliver sample(s) to the laboratory for analysis.

### 4.7.3 Wipe Sample Collection

Wipe sampling is accomplished by using a sterile gauze pad, adding a solvent in which the contaminant is most soluble, then wiping a pre-determined, pre-measured area. The sample is packaged in an amber jar to prevent photodegradation and packed in coolers for shipment to the lab. Each gauze pad is used for only one wipe sample.

1. Choose appropriate sampling points; measure off the designated area and photo document.

2. To facilitate later calculations, record surface area to be wiped.
3. Don a new pair of disposable surgical gloves.
4. Open new sterile package of gauze pad.
5. Soak the pad with the appropriate solvent.
6. Wipe the marked surface area using firm strokes. Wipe vertically, then horizontally to ensure complete surface coverage.
7. Place the gauze pad in an appropriately prepared sample container with a Teflon-lined cap.
8. Cap the sample container, attach the label and custody seal, and place in a double plastic bag. Record all pertinent data in the site logbook. Complete the sampling analysis request form and chain of custody form before taking the next sample.
9. Store samples out of direct sunlight and cool to 4°C.
10. Follow proper decontamination procedures, then deliver sample(s) to the laboratory for analysis.

#### 4.7.4 Sweep Sample Collection

Sweep sampling is appropriate for bulk contamination. This procedure utilizes a dedicated, hand-held sweeper brush to acquire a sample from a pre-measured area.

1. Choose appropriate sampling points; measure off the designated area and photo document.
2. To facilitate later calculations, record the surface area to be swept.
3. Don a new pair of disposable surgical gloves.
4. Sweep the measured area using a dedicated brush; collect the sample in a dedicated dust pan.
5. Transfer sample from dust pan to sample container.
6. Cap the sample container, attach the label and

custody seal, and place in a double plastic bag. Record all pertinent data in the site logbook. Complete the sampling analysis request form and chain of custody form before taking the next sample.

7. Store samples out of direct sunlight and cool to 4°C.
8. Leave contaminated sampling device in the sample material, unless decontamination is practical.
9. Follow proper decontamination procedures, then deliver sample(s) to the laboratory for analysis.

## 4.8 CALCULATIONS

Results are usually provided in mg/g,  $\mu\text{g/g}$  or another appropriate weight per unit weight measurement. Results may also be given in a mass per unit area.

## 4.9 QUALITY ASSURANCE/ QUALITY CONTROL

The following general quality assurance procedures apply:

- All data must be documented on standard chain of custody forms, field data sheets or within the site logbook.
- All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation, and they must be documented.

The following specific quality assurance activities apply to wipe samples:

- A blank should be collected for each sampling event. This consists of a sterile gauze pad, wet with the appropriate solvent, and placed in a prepared sample container. The blank will help identify potential introduction of contaminants via

the sampling methods, the pad, solvent or sample container.

- Spiked wipe samples can also be collected to better assess the data being generated. These are prepared by spiking a piece of foil of known area with a standard of the analyte of choice. The solvent containing the standard is allowed to evaporate, and the foil is wiped in a manner identical to the other wipe samples.

Specific quality assurance activities for chip and sweep samples should be determined on a site-specific basis.

#### **4.10 DATA VALIDATION**

Review the quality control samples and use the data to qualify the environmental results.

#### **4.11 HEALTH AND SAFETY**

When working with potentially hazardous materials, follow U.S. EPA, OSHA and specific health and safety procedures.

## 5.0 WASTE PILE SAMPLING: SOP #2017

### 5.1 SCOPE AND APPLICATION

The objective of this Standard Operating Procedure (SOP) is to outline the equipment and methods used in collecting representative samples from waste piles, sludges or other solid or liquid waste mixed with soil.

### 5.2 METHOD SUMMARY

Stainless steel shovels or scoops should be used to clear away surface material before samples are collected. For samples at depth, a decontaminated auger may be required to advance the hole, then another decontaminated auger used for sample collection. For a sample core, thin-wall tube samplers or grain samplers may be used. Near surfaces samples can be collected with a clean stainless steel spoon or trowel.

All samples collected, except those for volatile organic analysis, should be placed into a Teflon-lined or stainless steel pail and mixed thoroughly before being transferred to an appropriate sample container.

### 5.3 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Chemical preservation of solids is generally not recommended. Refrigeration to 4°C is usually the best approach, supplemented by a minimal holding time.

Wide mouth glass containers with Teflon-lined caps are typically used for waste pile samples. Sample volume required is a function of the analytical requirements and should be specified in the work plan.

### 5.4 INTERFERENCES AND POTENTIAL PROBLEMS

There are several variables involved in waste sampling, including shape and size of piles,

compactness, and structure of the waste material. Shape and size of waste material or waste piles vary greatly in areal extent and height. Since state and federal regulations often require a specified number of samples per volume of waste, size and shape must be used to calculate volume and to plan for the correct number of samples. Shape must also be accounted for when planning physical access to the sampling point and when selecting the appropriate equipment to successfully collect the sample at that location.

Material to be sampled may be homogeneous or heterogeneous. Homogeneous material resulting from known situations may not require an extensive sampling protocol. Heterogeneous and unknown wastes require more extensive sampling and analysis to ensure the different components are being represented.

The term "representative sample" is commonly used to denote a sample that has the properties and composition of the population from which it was collected, in the same proportions as found in the population. This can be misleading unless one is dealing with a homogenous waste from which one sample can represent the whole population.

The usual options for obtaining the most "representative sample" from waste piles are simple or stratified random sampling. Simple random sampling is the method of choice unless (1) there are known distinct strata; (2) one wants to prove or disprove that there are distinct strata; or (3) one is limited in the number of samples and desires to minimize the size of a "hot spot" that could go unsampled. If any of these conditions exist, stratified random sampling would be the better strategy.

This strategy, however, can be employed only if all points within the pile can be accessed. In such cases, the pile should be divided into a three-dimensional grid system; the grid sections assigned numbers; and the sampling points chosen using random-number tables or random-number generators. The only exceptions to this are situations in which representative samples cannot be collected safely or where the investigative team is trying to determine worst-case conditions.

If sampling is limited to certain portions of the pile, a statistically based sample will be representative only of that portion, unless the waste is homogenous.

## 5.5 EQUIPMENT/APPARATUS

Waste pile solids include powdered, granular, or block materials of various sizes, shapes, structure, and compactness. The type of sampler chosen should be compatible with the waste. Samplers commonly used for waste piles include: stainless steel scoops, shovels, trowels, spoons, and stainless steel hand augers, sampling triers, and grain samplers.

Waste pile sampling equipment check list:

- sampling plan
- maps/plot plan
- safety equipment, as specified in the health and safety plan
- compass
- tape measure
- survey stakes or flags
- camera and film
- stainless steel, plastic, or other appropriate homogenization bucket or bowl
- 1-quart mason jars w/Teflon liners
- Ziploc plastic bags
- logbook
- labels
- chain of custody forms and seals
- field data sheets
- cooler(s)
- ice
- decontamination supplies/equipment
- canvas or plastic sheet
- spade or shovel
- spatula
- scoop
- plastic or stainless steel spoons
- trowel
- continuous flight (screw) auger
- bucket auger
- post hole auger
- extension rods
- T-handle
- thin-wall tube sampler
- sampling trier
- grain sampler

## 5.6 REAGENTS

No chemical reagents are used for the preservation of waste pile samples; however, decontamination solutions may be required. If decontamination of equipment is required, refer to ERT Standard Operating Procedure (SOP) #2006, Sampling Equipment Decontamination, and the site-specific work plan.

## 5.7 PROCEDURES

### 5.7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and which equipment and supplies are required.
2. Obtain necessary sampling and monitoring equipment.
3. Decontaminate or preclean equipment, and ensure that it is in working order.
4. Prepare schedules, and coordinate with staff, client, and regulatory agencies, if appropriate.
5. Perform a general site survey prior to site entry in accordance with the site-specific health and safety plan.
6. Use stakes or flagging to identify and mark all sampling locations. Specific site factors, including extent and nature of contaminants, should be considered when selecting sample locations. If required, the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions.

### 5.7.2 Sample Collection

#### **SAMPLING WITH SHOVELS AND SCOOPS**

Collection of samples from surface portions of the pile can be accomplished with tools such as spades, shovels, and scoops. Surface material can be removed to the required depth with this equipment, then a stainless steel or plastic scoop can be used to collect the sample.

Accurate, representative samples can be collected with this procedure depending on the care and

precision demonstrated by sample team members. Use of a flat, pointed mason trowel to cut a block of the desired material can be helpful when undisturbed profiles are required. A stainless steel scoop, lab spoon, or plastic spoon will suffice in most other applications. Care should be exercised to avoid the use of devices plated with chrome or other materials. Plating is particularly common with implements such as garden trowels.

Use the following procedure to collect surface samples:

1. Carefully remove the top layer of material to the desired sample depth with a precleaned spade.
2. Using a precleaned stainless steel scoop, plastic spoon, or trowel, remove and discard a thin layer of material from the area which came in contact with the spade.
3. If volatile organic analysis is to be performed, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, plastic lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

### **SAMPLING WITH AUGERS AND THIN-WALL TUBE SAMPLERS**

This system consists of an auger, a series of extensions, a "T" handle, and a thin-wall tube sampler (Figure 13, Appendix B). The auger is used to bore a hole to a desired sampling depth, and is then withdrawn. The sample may be collected directly from the auger. If a core sample is to be collected, the auger tip is then replaced with a thin-wall tube sampler. The system is then lowered down the borehole, and driven into the pile at the completion depth. The system is withdrawn

and the core collected from the thin-wall tube sampler.

Several augers are available. These include: bucket, continuous flight (screw), and post hole augers. Bucket augers are better for direct sample recovery since they provide a large volume of sample in a short time. When continuous flight augers are used, the sample can be collected directly from the flights, which are usually at 5-foot intervals. The continuous flight augers are satisfactory for use when a composite of the complete waste pile column is desired. Post hole augers have limited utility for sample collection as they are designed to cut through fibrous, rooted, swampy areas.

Use the following procedure for collecting waste pile samples with the auger:

1. Attach the auger bit to a drill rod extension, and attach the "T" handle to the drill rod.
2. Clear the area to be sampled of any surface debris. It may be advisable to remove the first 3 to 6 inches of surface material for an area approximately 6 inches in radius around the drilling location.
3. Begin augering, periodically removing and depositing accumulated materials onto a plastic sheet spread near the hole. This prevents accidental brushing of loose material back down the borehole when removing the auger or adding drill rods. It also facilitates refilling the hole, and avoids possible contamination of the surrounding area.
4. After reaching the desired depth, slowly and carefully remove the auger from boring. When sampling directly from the auger, collect sample after the auger is removed from boring and proceed to Step 10.
5. Remove auger tip from drill rods and replace with a precleaned thin-wall tube sampler. Install proper cutting tip.
6. Carefully lower the tube sampler down the borehole. Gradually force the tube sampler into the pile. Care should be taken to avoid scraping the borehole sides. Avoid hammering the drill rods to facilitate coring as the vibrations may cause the boring walls to collapse.

7. Remove the tube sampler, and unscrew the drill rods.
  8. Remove the cutting tip and the core from device.
  9. Discard the top of the core (approximately 1-inch), as this represents material collected before penetration of the layer of concern. Place the remaining core into the appropriate labeled sample container. Sample homogenization is not required.
  10. If volatile organic analysis is to be performed, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, plastic lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.
  11. If another sample is to be collected in the same hole, but at a greater depth, reattach the auger bit to the drill and assembly, and follow steps 3 through 11, making sure to decontaminate the auger and tube sampler between samples.
2. Rotate the trier once or twice to cut a core of material.
  3. Slowly withdraw the trier, making sure that the slot is facing upward.
  4. If volatile organic analysis is to be performed, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, plastic lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are being collected, place samples from the other sampling intervals into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

### **SAMPLING WITH A GRAIN SAMPLER**

The grain sampler (Figure 15, Appendix B) is used for sampling powdered or granular wastes or materials in bags, fiberdrums, sacks, similar containers or piles. This sampler is most useful when the solids are no greater than 0.6 cm (1/4 inch) in diameter.

This sampler consists of two slotted telescoping brass or stainless steel tubes. The outer tube has a conical, pointed tip at one end that permits the sampler to penetrate the material being sampled. The sampler is opened and closed by rotating the inner tube. Grain samplers are generally 61 to 100 cm (24 to 40 inch) long by 1.27 to 2.54 cm (1/2 to 1 inch) in diameter and are commercially available at laboratory supply houses.

Use the following procedures to collect waste pile samples with a grain sampler:

### **SAMPLING WITH A TRIER**

This system consists of a trier and a "T" handle. The auger is driven into the waste pile and used to extract a core sample from the appropriate depth.

Use the following procedure to collect waste pile samples with a sampling trier:

1. Insert the trier (Figure 14, Appendix B) into the material to be sampled at a 0° to 45° angle from horizontal. This orientation minimizes spillage of the sample. Extraction of the samples might require tilting of the sample containers.
1. With the sampler in the closed position, insert it into the granular or powdered material or waste being sampled from a point near a top edge or corner, through the center, and to a point diagonally opposite the point of entry.



2. Rotate the sampler inner tube into the open position.
3. Wiggle the sampler a few times to allow material to enter the open slots.
4. With the sampler in the closed position, withdraw it from the material being sampled.
5. Place the sampler in a horizontal position with the slots facing upward.
6. Rotate the outer tube and slide it away from the inner tube.
7. If volatile organic analysis is to be performed, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, plastic lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

## **5.8 CALCULATIONS**

This section is not applicable to this SOP.

## **5.9 QUALITY ASSURANCE/ QUALITY CONTROL**

There are no specific quality assurance activities which apply to the implementation of these procedures. However, the following QA procedures apply:

- All data must be documented on field data sheets or within site logbooks.
- All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation, and they must be documented.

## **5.10 DATA VALIDATION**

This section is not applicable to this SOP.

## **5.11 HEALTH AND SAFETY**

When working with potentially hazardous materials, follow U.S. EPA, OSHA and specific health and safety procedures.

**APPENDIX A**  
**Drum Data Sheet Form**

# Drum Data Sheet Form

SOP #2009

Drum ID#: \_\_\_\_\_

Date Sampled: \_\_\_\_\_

Estimated Liquid Quantity: \_\_\_\_\_

Time: \_\_\_\_\_

Grid Location: \_\_\_\_\_

Staging Location: \_\_\_\_\_

Sampler's Name: \_\_\_\_\_

Drum Condition: \_\_\_\_\_

Sampling Device: \_\_\_\_\_

Physical Appearance of the Drum/Bulk Contents: \_\_\_\_\_

Odor: \_\_\_\_\_

Color: \_\_\_\_\_

pH: \_\_\_\_\_ % Liquid: \_\_\_\_\_

Laboratory Analytical Data: \_\_\_\_\_ Date of Analysis: \_\_\_\_\_

Compatibility: \_\_\_\_\_

Hazard: \_\_\_\_\_

Waste ID: \_\_\_\_\_

Treatment Disposal Recommendations: \_\_\_\_\_

## Approval

Lab: \_\_\_\_\_

Date: \_\_\_\_\_

Site Manager: \_\_\_\_\_

Date: \_\_\_\_\_

\* Area of site where drum was originally located.

Based on di Napoli, 1982. Table originally printed in the Proceedings of the National Conference on Management of Uncontrolled Hazardous Waste Sites, 1982. Available from Hazardous Materials Control Research Institute, 9300 Columbia Blvd., Silver Spring, MD 20910.

## APPENDIX B

### Figures

Figure 1: Universal Bung Wrench

SOP #2009

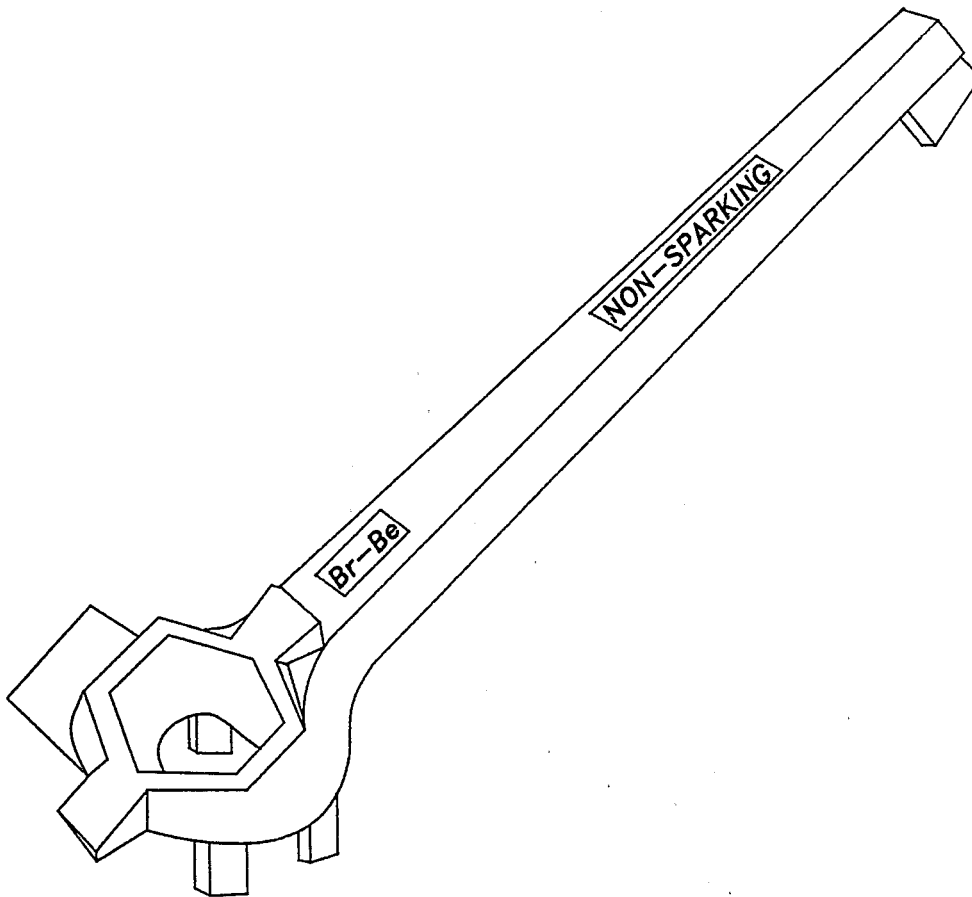


Figure 2: Drum Deheader

SOP #2009

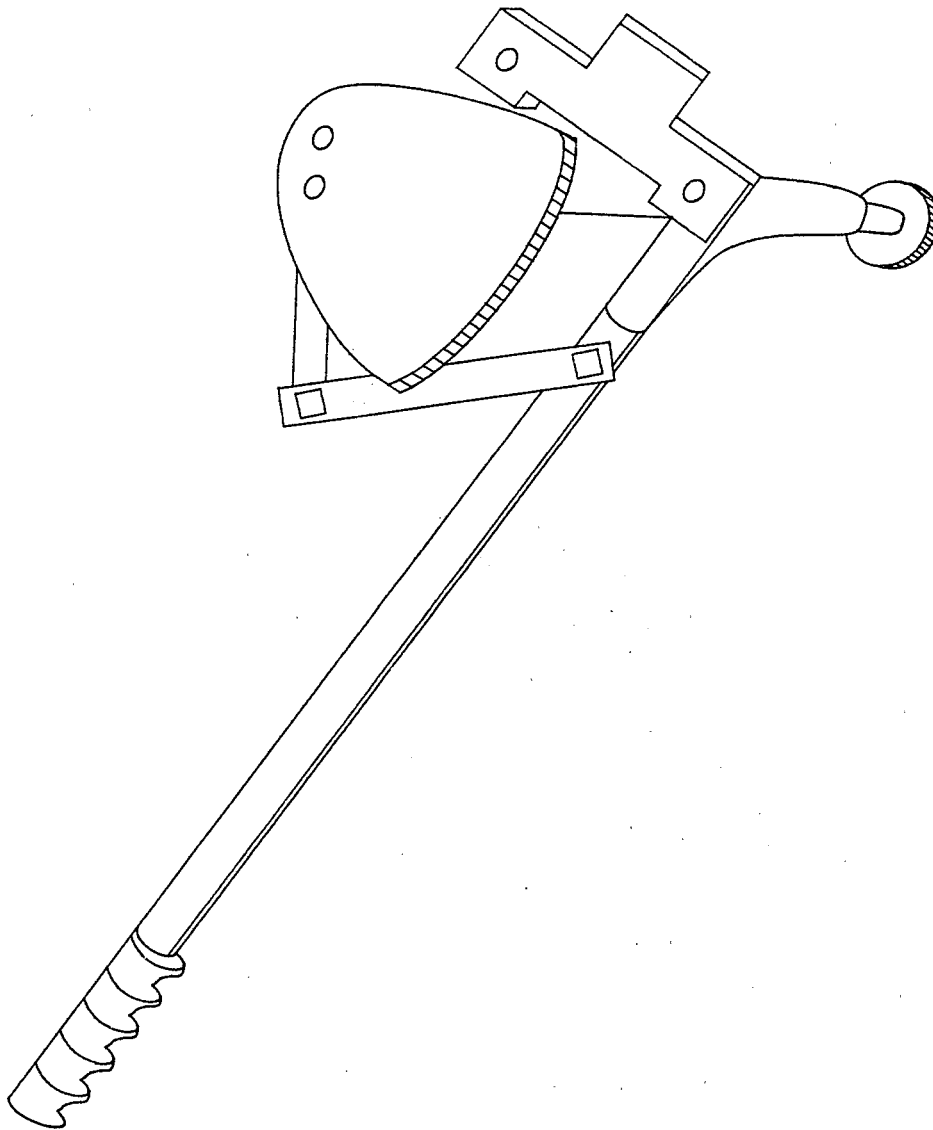


Figure 3: Hand Pick, Pickaxe, and Hand Spike

SOP #2009

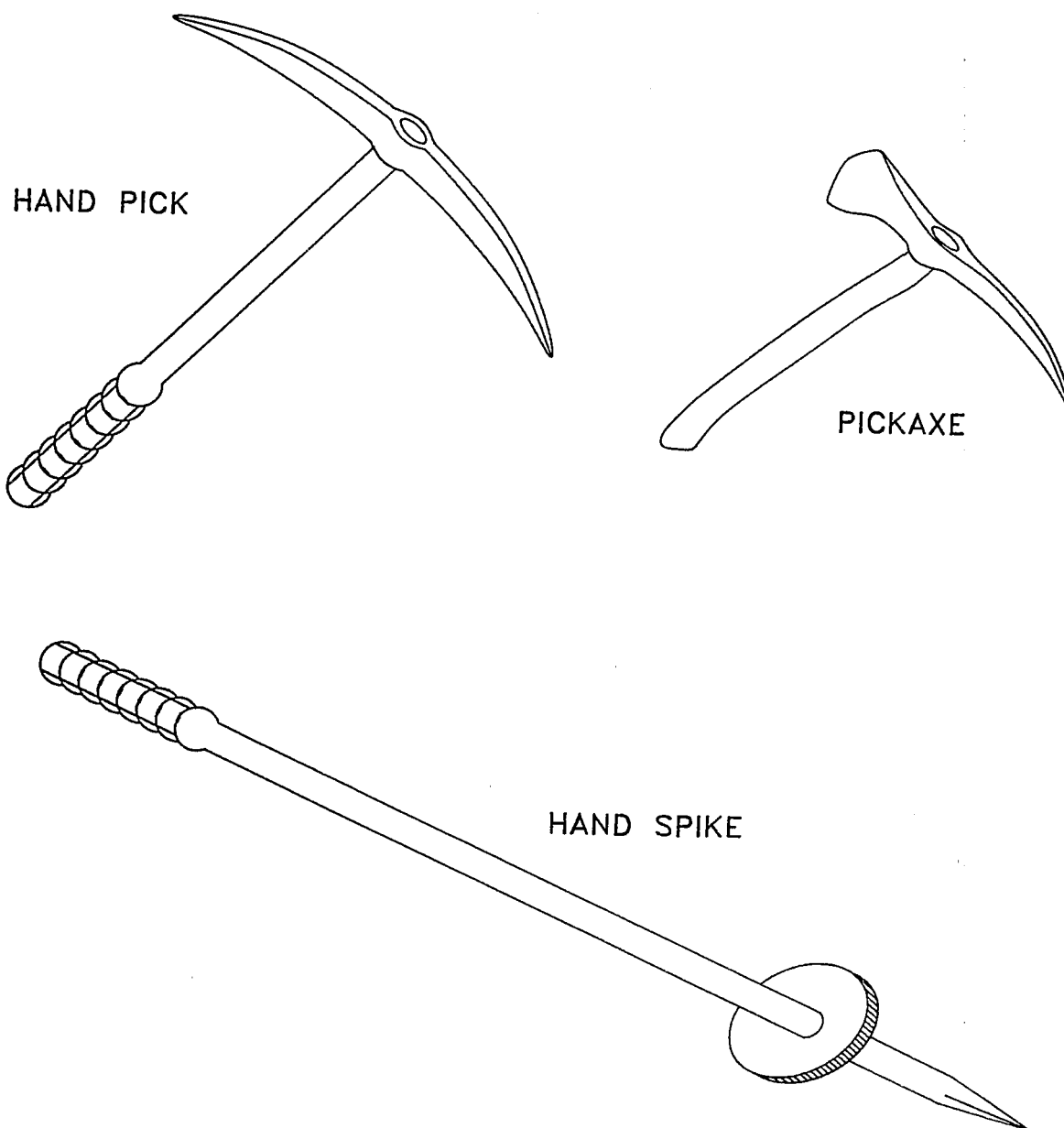


Figure 4: Backhoe Spike

SOP #2009

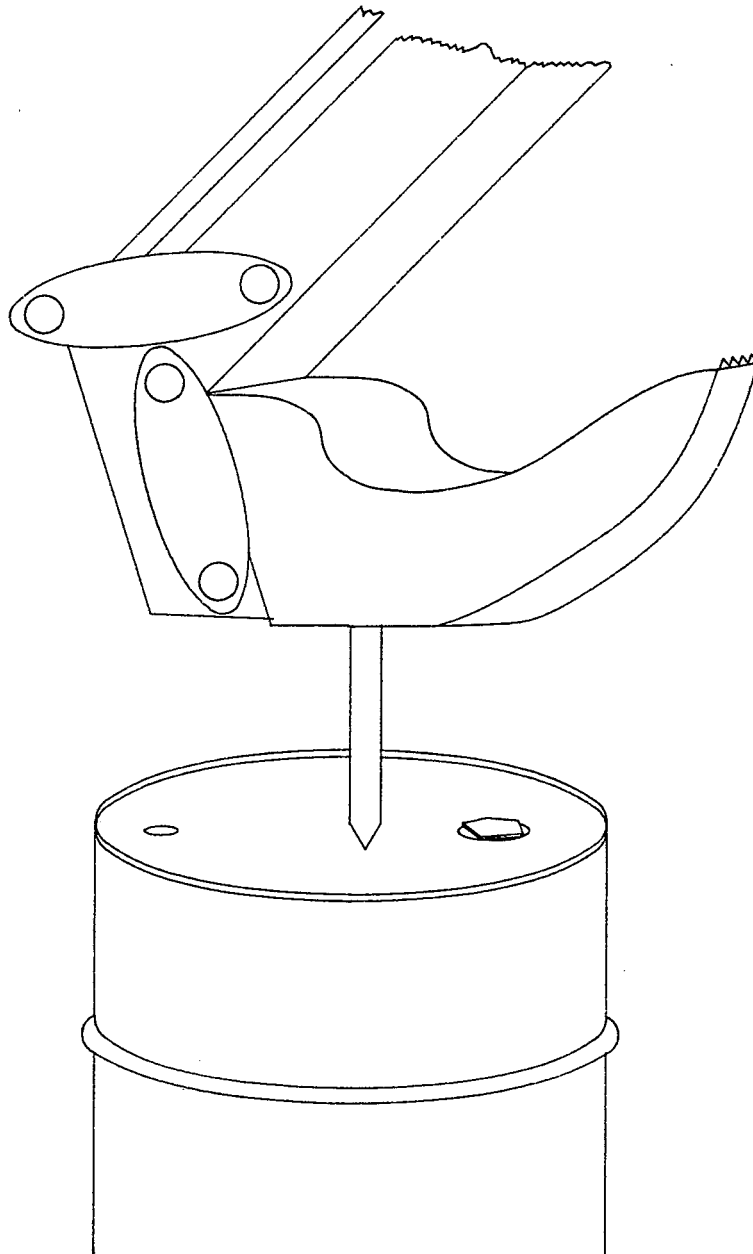




Figure 5: Hydraulic Drum Opener

SOP #2009

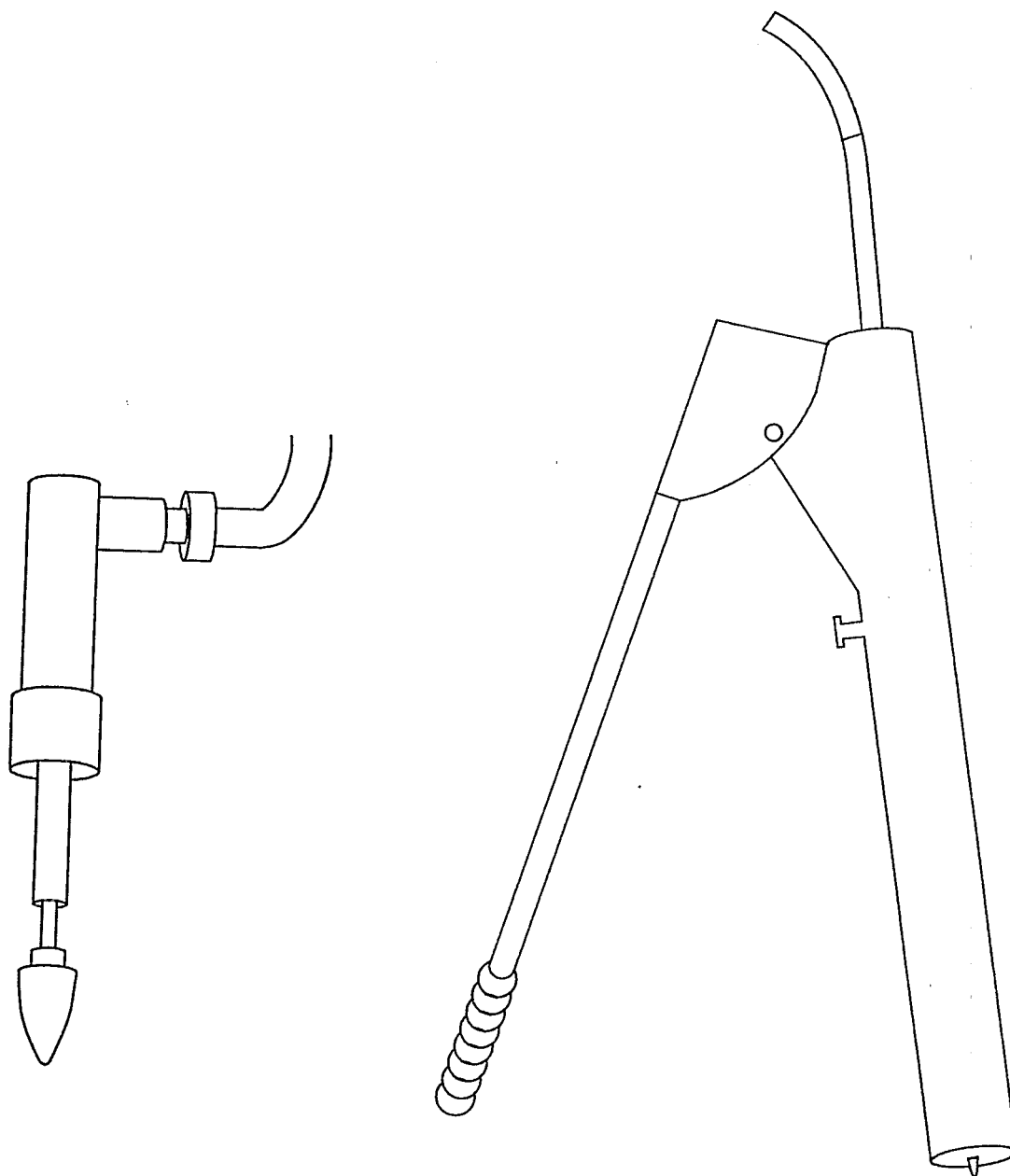
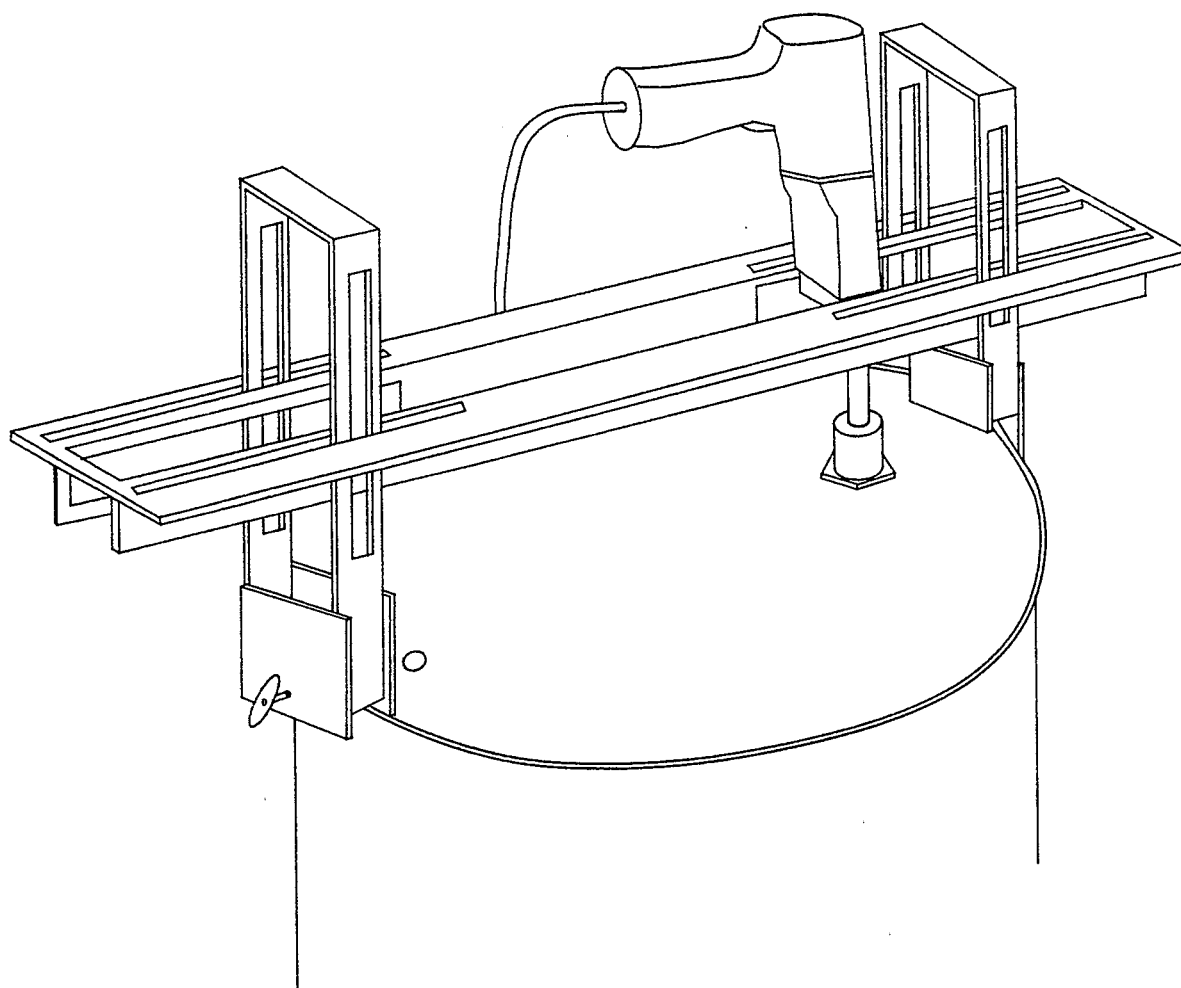


Figure 6: Pneumatic Bung Remover

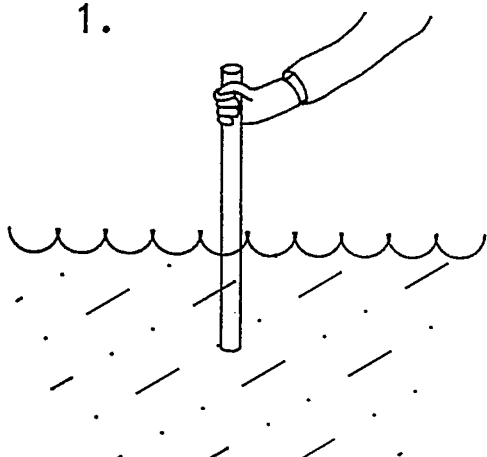
SOP #2009



## Figure 7: Glass Thief

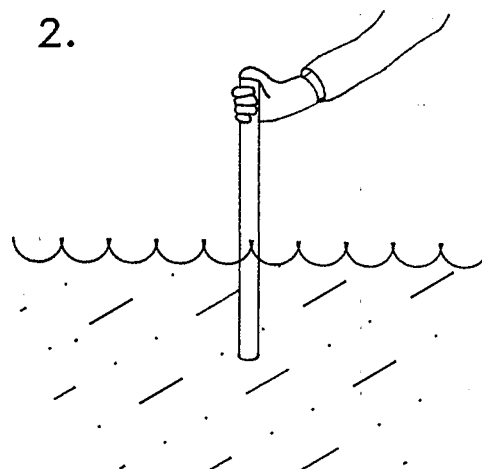
SOP# 2009

1.



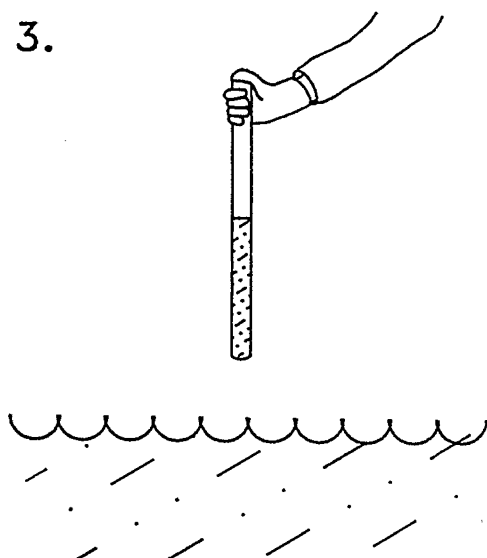
Insert open tube (thief) sampler in containerized liquid.

2.



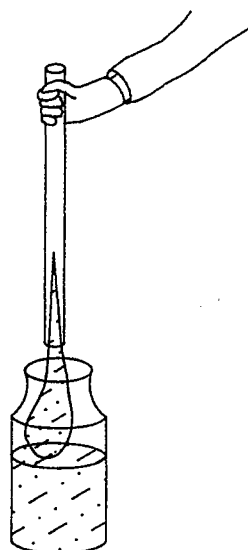
Cover top of sampler with gloved thumb.

3.



Remove open tube (thief) sampler from containerized liquid.

4.



Place open tube sampler over appropriate sample bottle and remove gloved thumb.

Figure 8: COLIWASA

SOP #2009

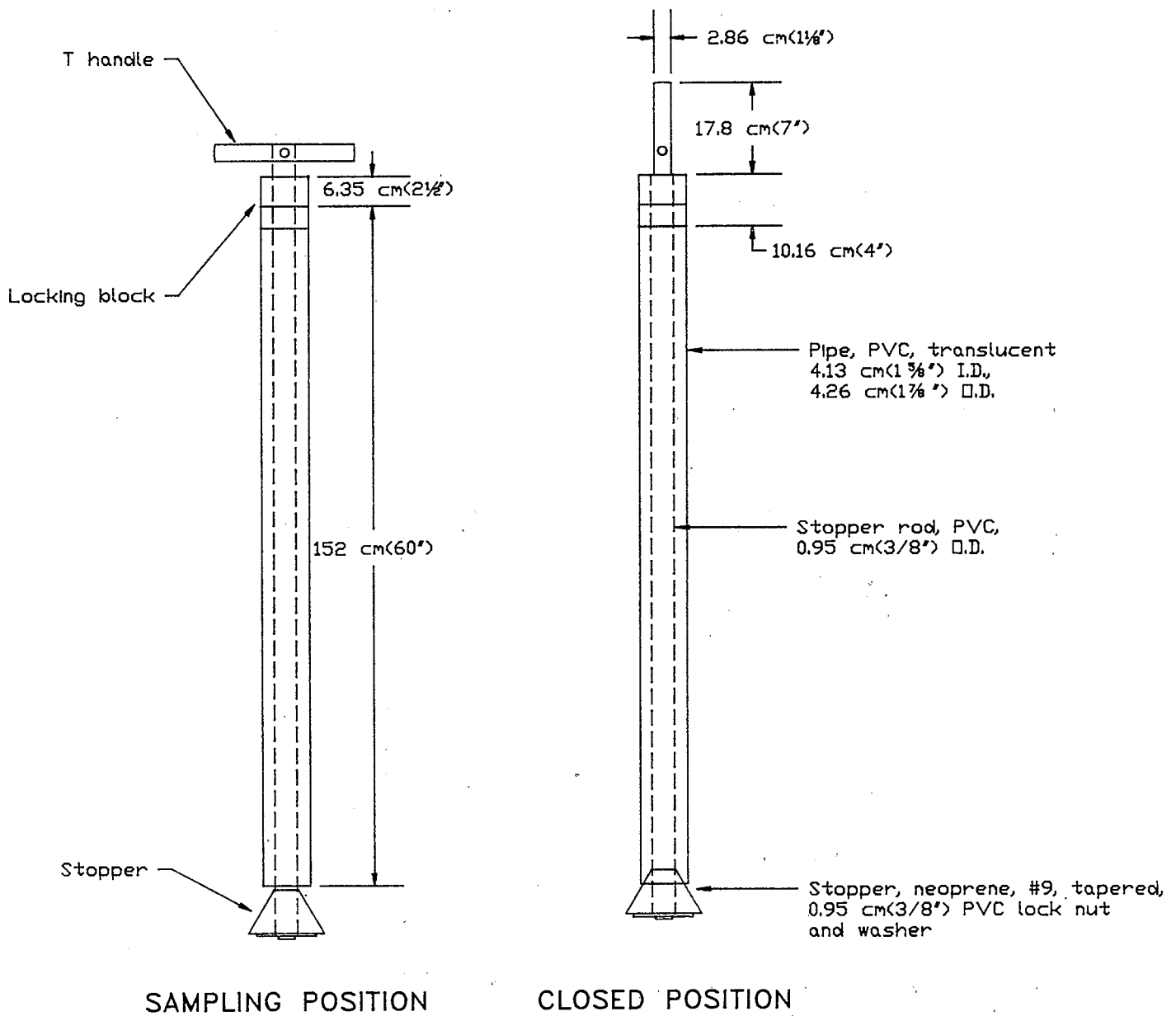


Figure 9: Bacon Bomb Sampler

SOP #2010

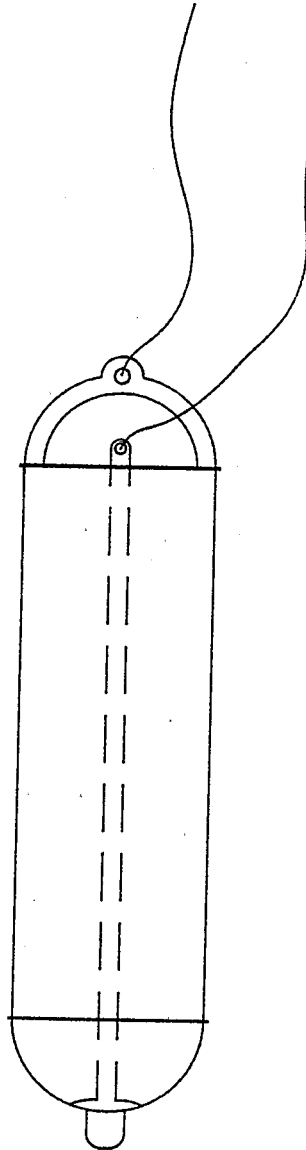


Figure 10: Sludge Judge

SOP #2010

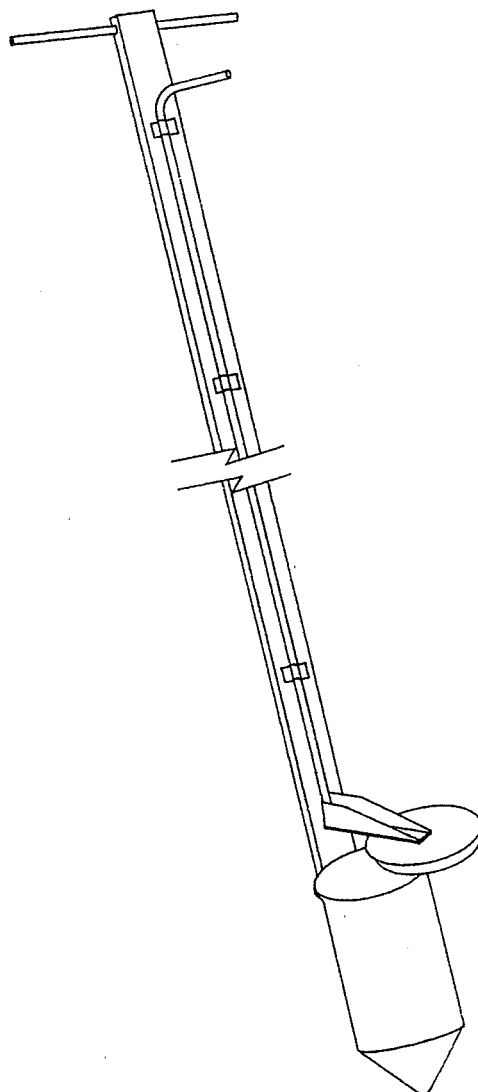


Figure 11: Subsurface Grab Sampler

SOP #2010

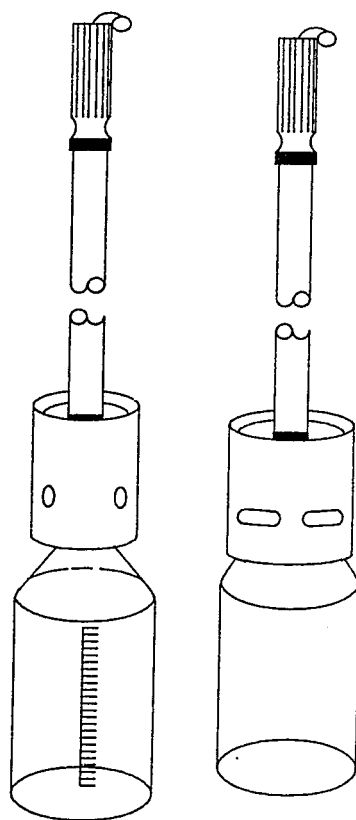


Figure 12: Bailer

SOP #2010

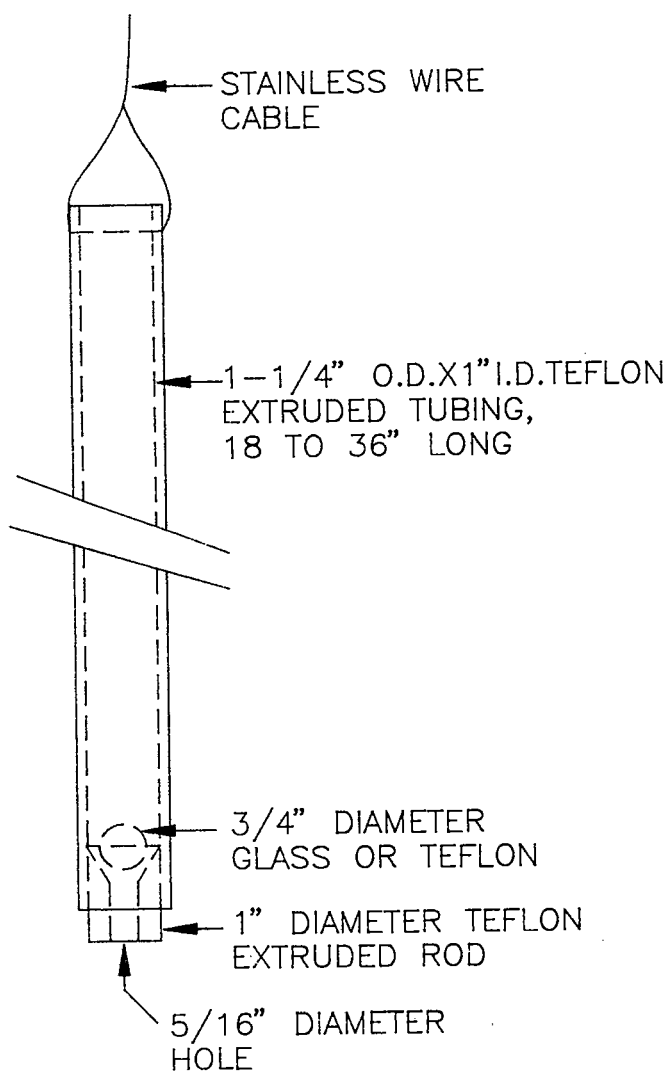
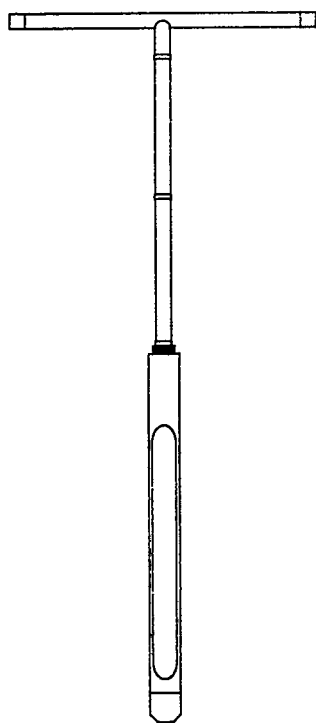


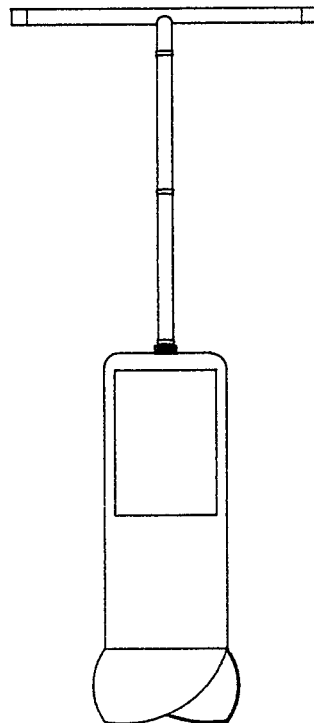


Figure 13: Sampling Augers

SOP #2017



TUBE  
AUGER



BUCKET  
AUGER

Figure 14: Sampling Trier

SOP #2017

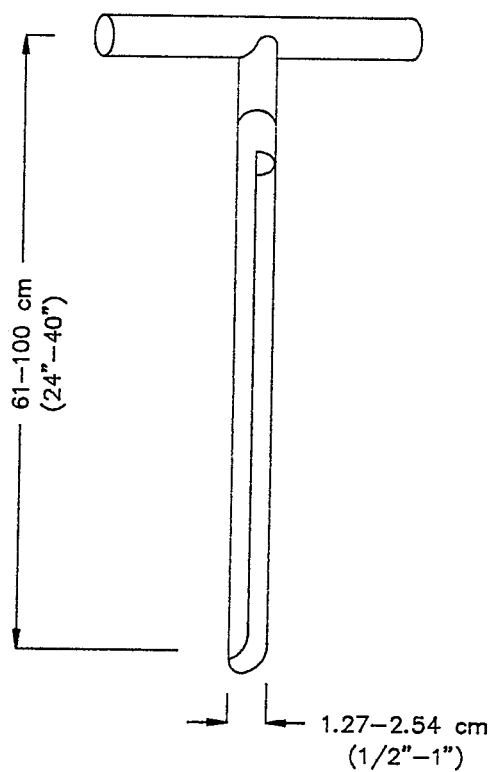
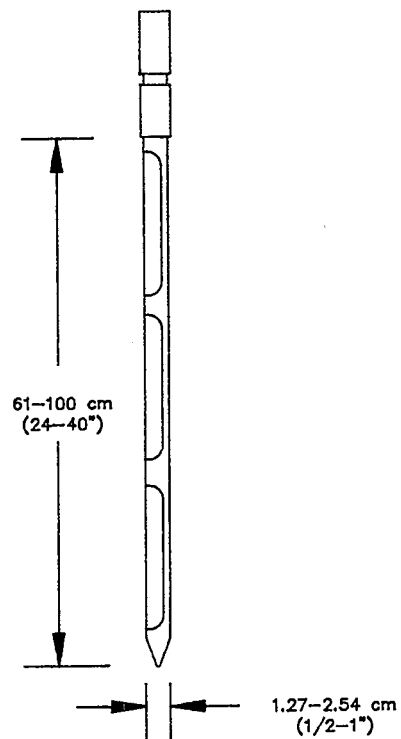


Figure 15: Grain Sampler

SOP #2017



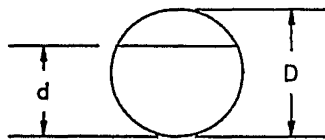
## APPENDIX C

### Calculations

# Various Volume Calculations

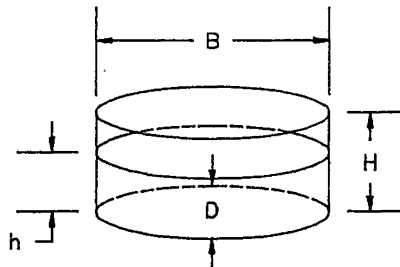
SOP #2010

## SPHERE



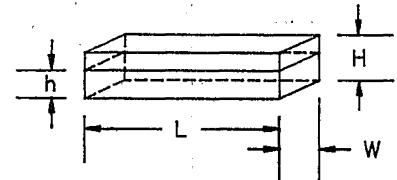
Total Volume  
 $V = \frac{1}{6} \pi D^3 = 0.523498 D^3$   
 Partial Volume  
 $V = \frac{1}{3} \pi d^2 (3/2 D - d)$

## ELLIPTICAL CONTAINER



Total Volume  
 $V = \pi B D H$   
 Partial Volume  
 $V = \pi B D h$

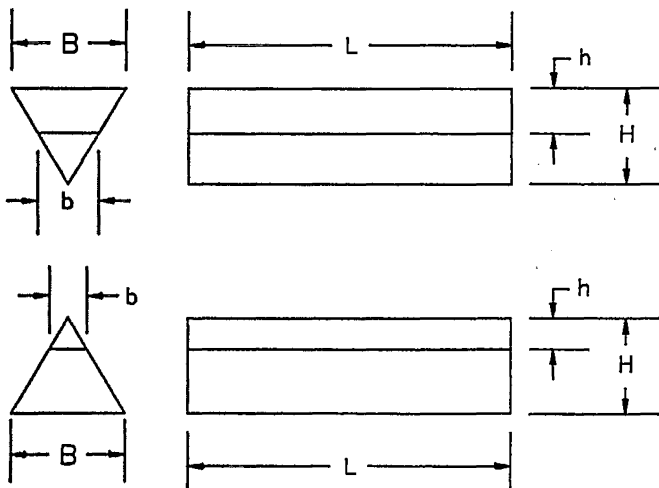
## ANY RECTANGULAR CONTAINER



Total Volume  
 $V = H L W$   
 Partial Volume  
 $V = h L W$

## TRIANGULAR CONTAINER

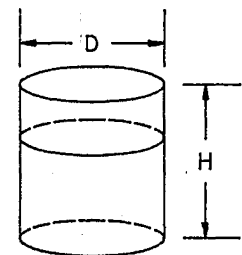
Total Volume  
 $V = \frac{1}{2} H B L$



Case 1  
 Partial Volume  
 $V = \frac{1}{2} h B L$

Case 2  
 Partial Volume  
 $V = \frac{1}{2} L (H B - h B)$

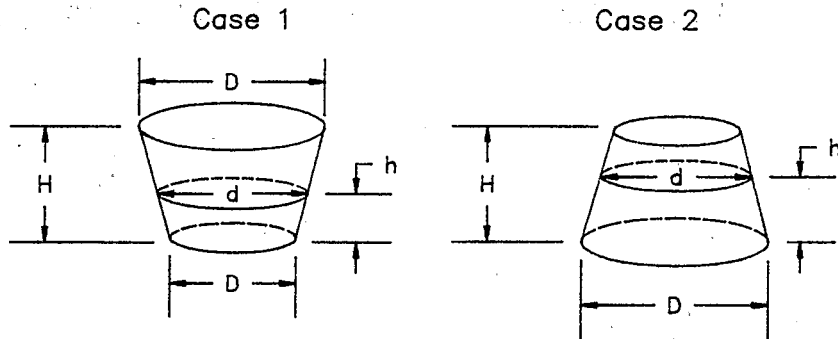
## RIGHT CYLINDER



Total Volume  
 $V = \frac{1}{4} \pi D^2 H$   
 Partial Volume  
 $V = \frac{1}{4} \pi D^2 h$

## Various Volume Calculations (Cont'd)

### FRUSTUM OF A CONE



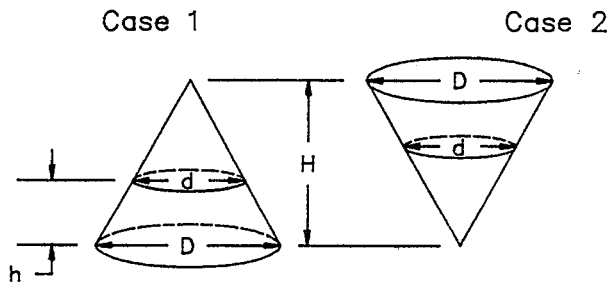
Total Volume

$$V = \pi/12 H(D_1^2 + D_1 D_2 + D_2^2)$$

Partial Volume

$$V = \pi/12 h(D_1^2 + D_1 d + d^2)$$

### CONE



Total Volume

$$V = \pi/12 \cdot D^2 H$$

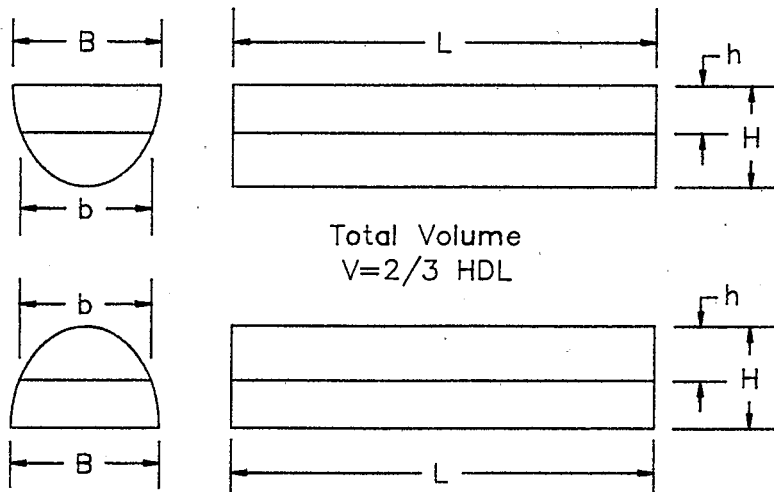
Partial Volume Case 1

$$V = \pi/12 \cdot d^2 h$$

Partial Volume Case 2

$$V = \pi/12 \cdot (D^2 H - d^2 h)$$

### PARABOLIC CONTAINER



Total Volume  
 $V = 2/3 HDL$

Case 1

Partial Volume

$$V = 2/3 h d L$$

Case 2

Partial Volume

$$V = 2/3 (HD - h d) \cdot L$$

## References

- Illuminating Engineers Society. 1984. IES Lighting Handbook. New York, NY. eds. John E. Kaufman and Jack Christensen. (2 volumes).
- National Institute for Safety and Health. October 1985. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.
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- U. S. EPA/Region IV, Environmental Services Division. April 1, 1986. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual. Athens, Georgia.
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- U.S. EPA. 1987. A Compendium of Superfund Field Operations Methods. EPA/540/5-87/001. Office of Emergency and Remedial Response. Washington, D.C. 20460.

## FIGURES



## **APPENDIX C**

**TDD NO. 2/WESTON-042-16-020**

U.S. EPA, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733  
Vendor : WESTON SOLUTIONS, INC.

TDD # : 2/WESTON-042-16-020  
Amendment # :  
Contract # : EP-W-06-042

TDD Title :Lard Oil Company  
Purpose : TDD INITIATION  
  
Priority : HIGH  
Overtime Authorized : No  
Invoice Unit :

Verbal Date : 08/19/2016  
Start Date : 08/19/2016  
Completion Date : 01/13/2017  
Effective Date : 08/19/2016

SSID : V6RW  
Project/Site Name : LARD OIL COMPANY  
Project Address : 914 Florida Ave. SW  
County : Livingston  
City : Denham Springs  
State : LA  
Zip Code :

Work Area : Response / Removal  
Work Area Code : RS  
Activity : Oil Spill w/ FPN - Reimbursable Incident Specific  
Activity Code : Z\*  
Operable Unit :  
Emergency Code :  
FPN : E16620  
Performance Based : No

Authorized TDD Ceiling :	Amount	LOE (Hours)
Previous Action(s) :	\$0.00	0.00
This Action :	\$40,000.00	0.00
New Total :	\$40,000.00	0.00

Specific Elements :  
See Schedule

Description of Work :  
See Schedule

Region Specific :  
CERCLIS : Misc 2 :

Accounting and Appropriation Information:

SFO:

Line	Budget / FY	Approp	Budget	Program Element	Object Class	Site Project	Cost	DCN Line-ID	Funding Category	TDD Amount
1	16	H	06LA	303D91	2505	Z600	C001	1606HRC013-001	OPA SITE	\$40,000.00

U.S. EPA, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

Vendor: WESTON SOLUTIONS, INC.

TDD #: 2/WESTON-042-16-020

Amendment #:

Contract #: EP-W-06-042

<b>Project Officer :</b> Will LaBombard  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code:</b> <b>Phone Number :</b> 214-665-7199 <b>Fax Number :</b>
<b>Contracting Officer Representative</b> Bryant Smalley  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> 214-665-7368 <b>Fax Number :</b>
<b>Contract Specialist:</b> Michael J. Pheeny  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> 214-665-2798 <b>Fax Number :</b>
<b>Contracting Officer :</b> Michael J. Pheeny Electronically Signed by Michael J. Pheeny 08/30/2016 <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> 214-665-2798 <b>Fax Number :</b>
<b>Other Agency Official</b>  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> <b>Fax Number :</b>

Specific Elements: Assess -incident and response, Document -written and photographic documentation of incident and response, Provide -technical support, mapping of drainage / site locations, AOC report, website updates.

Description of Work: The initial funding ceiling is set at \$40,000.

Collect facts regarding the discharge or release to include its source and cause, - Analyze the nature amount and location of discharged or released materials, - Analyze the probable direction and time of travel of discharged or released materials, - Analyze the potential impact on human health welfare and safety and the environment posed by the release of contaminants or pollutants and discharge of oil, -Maintain a site logbook. - Provide analysis of discharges or releases posing a substantial threat to the public health or welfare of the United States, - Identify active or historical facility processes or operations that may contribute to the release or threat of release of hazardous substances pollutants contaminants or discharge of oil, - Develop site specific Health and Safety Plans (HSPs), - Observe and document federal state and private actions taken to conduct a response action. ; Disseminate EPA-approved Information to the public, - Conduct deed and title searches, -Identify Responsible Parties (RP), - Develop public information summaries for Internet distribution, Support EPA in responding to the release or threat of release of oil or petroleum products. Coordinate Final Report with OSC. Alternate OSC GARY MOORE

Contractor shall provide documentation in support of the invoice. Documentation shall include: time sheets with description of work completed, subcontractor invoices with explanation of work provided, documentation to support internal/external equipment rentals, travel expense reports with receipts, purchases made dedicated to the project with explanation and receipts, and any other documentation that contractor determines applicable. This documentation shall be submitted with the monthly vouchers in an electronic format deliverable to the PO/CO supporting the time period and costs claimed in the invoice. Additionally, contractor shall provide a final cost package deliverable at the completion of the project. The deliverable shall include all documents previously sent to EPA rolled up into one document which includes: the Technical Direction Document (TDD), Technical Monthly Progress reports (TPRs), invoices and all supporting cost documentation described above. Contractor shall provide two electronic versions of the final deliverable: one redacted and one unredacted. On the unredacted electronic version, the Contractor shall highlight all information that is Confidential Business Information.

**ATTACHMENT I**

**LABORATORY ANALYTICAL RESULTS**

# **Oil Sample Analysis Report**

**U. S. EPA Region VI  
Case Number E16620**

**Marine Safety Laboratory  
Case Number 16-144**



U.S. Department of  
Homeland Security

**United States  
Coast Guard**



Manager  
U.S. Coast Guard  
Marine Safety Laboratory

1 Chelsea Street  
New London, CT 06320  
Phone: (860) 271-2704  
Fax: (860) 271-2641

16450  
07 Sep 2016

U. S. Environmental Protection Agency  
Attn: On-Scene Coordinator  
1445 Ross Avenue, Fountain Place 12th Floor, Suite 1200  
Mail Code: 6SF-PR  
Dallas, TX 752022733

Dear On-Scene Coordinator:

The laboratory analysis of this case has been completed and our report is forwarded. The technical data supporting the report (spectrograms and chromatograms) have been archived at our facility and are available upon request. We will maintain the oil samples in refrigerated storage pending final case disposition.

Questions concerning this report or the analytical methods used should be directed to the Supervisor of Analysis.

  
K. JUAIRE

Encl: (1) MSL Report 16-144

**United States Coast Guard  
Marine Safety Laboratory  
Oil Sample Analysis Report  
16-144**

**Requestor:** U. S. EPA Region VI

**Unit Case/Activity Number:** E16620

**Received:** 23-Aug-16

**Via:** Federal Express 7770 5285 1283

**Number Of Samples:** 27

**Lab ID for Spills:** 10 through 27

**Lab ID for Sources:** 1 through 9

**Lab ID for Background:** n/a

**Analysis Methods:**

- ☒ GAS CHROMATOGRAPHY (GC)
- ☒ GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS)
- ☐ INFRARED SPECTROSCOPY (IR)

**Laboratory's Conclusion (as explained below):NON-MATCH**

**SPECIAL INSTRUCTIONS:** Use one sample from each batch of replicates for analysis. Sample 16-144-27 is for ID only.

**RESULTS:**

1. Samples 16-144-10, 13, 15, 18, 21, 24, and 27 were specified to be representative of spilled oil. Analysis indicates:
  - A. Samples 16-144-10, 18, 21, and 24 are somewhat similar to each other and contain primarily lubricating oil. Fuel oil hydrocarbons and non-petroleum contamination are present in all four samples. While important similarities suggest samples 16-144-10, 18, 21, and 24 are related to each other through a common source of petroleum oil, not all differences are attributable to weathering or non-petroleum contamination.
  - B. Sample 16-144-13 contains lubricating oil. The quantity is not sufficient for comparison purposes based on the analysis conducted.
  - C. Samples 16-144-15 and 27 do not contain a quantity of petroleum oil detectable by the analysis conducted.
2. Suspected source sample 16-144-4 contains primarily lubricating oil with characteristics somewhat similar to those of spill samples 16-144-10, 18, 21, and 24. While important similarities suggest these samples are related to each other through a common source of petroleum oil, not all differences noted are attributable to weathering or non-petroleum contamination.
3. Suspected source sample 16-144-1 contains primarily lubricating oil with characteristics different from those of spill samples 16-144-10, 18, 21, and 24. Differences are not attributable to weathering or non-petroleum contamination.
4. Suspected source sample 16-144-7 does not contain a quantity of petroleum oil detectable by the analysis conducted.

**SUPERVISOR OF ANALYSIS**

K. JUAIRE

**DATE** 07-Sep-16

**United States Coast Guard  
Marine Safety Laboratory  
Oil Sample Analysis Report  
Continuation  
16-144**

**CONCLUSIONS:**

1. While important similarities suggest samples 16-144-4, 10, 18, 21, and 24 are related to each other through a common source of lubricating oil, not all differences noted are attributable to weathering or non-petroleum contamination.
2. Suspected source sample 16-144-1 and spill samples 16-144-10, 18, 21, and 24 are not derived from a common source of petroleum oil.
3. Samples 16-144-13 and 14 contain lubricating oil. The quantity is not sufficient for correlation analysis.
4. Samples 16-144-7, 15, and 27 do not contain a quantity of petroleum oil detectable by the analysis conducted.

**SUPERVISOR OF ANALYSIS**

K. JUAIRE



**DATE**

07-Sep-16



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**United States Coast Guard  
Marine Safety Laboratory**

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**Oil Spill Identification Analysis  
Cost Recovery Documentation**

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**Laboratory Case Number:** 16-144  
**Requestor:** U. S. EPA Region VI  
**Unit Case Number:** E16620  
**Number of Samples:** 29  
**Cost Per Sample Prepared:** \$20.00  
**Total Costs of Sample Preparation:** \$580.00  
**Number of Analyses:** 39  
**Cost Per Sample Analyzed:** \$86.00  
**Total Costs for Analysis:** \$3,354.00  
**TOTAL COSTS:** \$3,934.00

This documentation is provided for purposes of Phase IV - Documentation and  
Cost Recovery under the National Oil and Hazardous Substances Pollution  
Contingency Plan (40 CFR Part 300)

**Signature:**



**Date:** 07 Sep 2016

**United States Coast Guard  
Marine Safety Laboratory Sample  
Check-In Log**

**MSL Case/Activity Number: 16-144**

**Requestor:** U. S. EPA Region VI

**Unit Case Number:** E16620

**Federal Project Number:** E16620

**Delivery Method:** Federal Express

**Received Date:** 23 Aug 16

**Delivery Number:** 7770 5285 1283

**Priority:** Yes

**Rush:** No

**Comparison:** No

Lab ID 16-144	Sample Descriptions from Sample Jars	Spill	Source
1	914F-01-08192016 LARD OIL PROPERTY - WHITE EMULSION 8/19/16 1450	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	914F-01-08192016 LARD OIL PROPERTY - WHITE EMULSION 8/19/16 1450	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	914F-01-08192016 LARD OIL PROPERTY - WHITE EMULSION 8/19/16 1450	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	914F-02-08192016 LARD OIL PROPERTY - OFF-WHITE EMULSION 8/19/16 1500	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	914F-02-08192016 LARD OIL PROPERTY - OFF-WHITE EMULSION 8/19/16 1500	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	914F-02-08192016 LARD OIL PROPERTY - OFF-WHITE EMULSION 8/19/16 1500	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	914F-03-08192016 LARD OIL PROPERTY- DARK COLORED PUDDLED WATER 8/19/16 1515	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	914F-03-08192016 LARD OIL PROPERTY- DARK COLORED PUDDLED WATER 8/19/16 1515	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	914F-03-08192016 LARD OIL PROPERTY- DARK COLORED PUDDLED WATER 8/19/16 1515	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	(b) (6)-01-08192016 PROPERTY (b) (6) WHITE EMULSION 8/19/16 1109	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Remarks:** Sample 27 is ID only. Sample numbers for samples 1-9 taken from the Chain of Custody.

**Samples checked in by:** MST3 MOLLY OEFFNER

**Date:** 23 Aug 16

**Sample Custodian:** MST2 CHELSEA WARREN

**Date:** 29 AUG 16

**Supervisor of Analysis:** K. JUAIRE

**Date:** 07 Sep 16

**United States Coast Guard  
Marine Safety Laboratory  
Check-In Log**

**MSL Case Number: 16-144**

Lab Number 16-144	Sample Descriptions from Sample Jars	Spill	Source
11	(b) (6)-01-08192016 PROPERTY (b) (6)- WHITE EMULSION 8/19/16 1109	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	(b) (6)-01-08192016 PROPERTY (b) (6)- WHITE EMULSION 8/19/16 1109	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	(b) (6)-02-08192016 PROPERTY (b) (6)- DARK EMULSION 8/19/16 1130	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	(b) (6)-02-08192016 PROPERTY (b) (6)- DARK EMULSION 8/19/16 1130	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	125H-03-08192016 PROPERTY 125H- OIL-LIKE MATERIAL ON SEDIMENT 08/19/16 1156	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	125H-03-08192016 PROPERTY 125H- OIL-LIKE MATERIAL ON SEDIMENT 08/19/16 1156	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	125H-03-08192016 PROPERTY 125H- OIL-LIKE MATERIAL ON SEDIMENT 08/19/16 1156	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	(b) (6)-04-08192016 PROPERTY (b) (6)- OILED VEGETATION 08/19/16 1159	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19	(b) (6)-04-08192016 PROPERTY (b) (6)- OILED VEGETATION 08/19/16 1159	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	(b) (6)-04-08192016 PROPERTY (b) (6)- OILED VEGETATION 08/19/16 1159	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples checked in by: MST3 MOLLY OEFFNER

Date: 23 Aug 16

Sample Custodian: MST2 CHELSEA WARREN

Date: 29 Aug 16

Supervisor of Analysis: K. JUARE

Date: 01 Sep 16

**United States Coast Guard  
Marine Safety Laboratory  
Check-In Log**

**MSL Case Number: 16-144**

Lab Number 16-144	Sample Descriptions from Sample Jars	Spill	Source
21	(b) (6)-05-08192016 PROPERTY (b) (6) OILED VEGETATION 8/19/16 1207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
22	(b) (6)-05-08192016 PROPERTY (b) (6) OIL VEGETATION 8/19/16 1207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
23	(b) (6)-05-08192016 PROPERTY (b) (6) OILED VEGETATION 8/19/16 1207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
24	108H-06-08192016 PROPERTY 108H- OILED VEGETATION 8/19/16 1250	<input checked="" type="checkbox"/>	<input type="checkbox"/>
25	108H-06-08192016 PROPERTY 108H- OILED VEGETATION 8/19/16 1250	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26	108H-06-08192016 PROPERTY 108H- OILED VEGETATION 8/19/16 1250	<input checked="" type="checkbox"/>	<input type="checkbox"/>
27	(b) (6)-07-08222016 PROPERTY (b) (6) BATHTUB + FLOOR MATERIAL 8/22/16 1155	<input checked="" type="checkbox"/>	<input type="checkbox"/>
28		<input type="checkbox"/>	<input type="checkbox"/>
29		<input type="checkbox"/>	<input type="checkbox"/>
30		<input type="checkbox"/>	<input type="checkbox"/>

Samples checked in by: MST3 MOLLY OEFFNER

Date: 23 Aug 16

Sample Custodian: MST2 CHELSEA WARREN

Date: 29 AUG 16

Supervisor of Analysis: K. JUAIRE

Date: 01 Sep 16



# **Oil Sample Analysis Report**

**U. S. EPA Region VI  
Case Number E16620**

**Marine Safety Laboratory  
Case Number 16-148**



U.S. Department of  
Homeland Security

**United States  
Coast Guard**



Manager  
U.S. Coast Guard  
Marine Safety Laboratory

1 Chelsea Street  
New London, CT 06320  
Phone: (860) 271-2704  
Fax: (860) 271-2641

16450  
06 Sep 2016

U. S. Environmental Protection Agency  
Attn: On-Scene Coordinator  
1445 Ross Avenue, Fountain Place 12th Floor, Suite 1200  
Mail Code: 6SF-PR  
Dallas, TX 752022733

Dear On-Scene Coordinator:

The laboratory analysis of this case has been completed and our report is forwarded. The technical data supporting the report (spectrograms and chromatograms) have been archived at our facility and are available upon request. We will maintain the oil samples in refrigerated storage pending final case disposition.

Questions concerning this report or the analytical methods used should be directed to the Supervisor of Analysis.

  
K. JUAIRE

Encl: (1) MSL Report 16-148

**United States Coast Guard  
Marine Safety Laboratory  
Oil Sample Analysis Report  
16-148**

**Requestor:** U. S. EPA Region VI

**Unit Case/Activity Number:** E16620

**Received:** 30-Aug-16

**Via:** Federal Express 7771 0645 7538

**Number Of Samples:** 20

**Lab ID for Spills:** 1, 2, 3, 4, 5, 6, 7, and 8

**Lab ID for Sources:** 9 through 20

**Lab ID for Background:** n/a

**Analysis Methods:**

- ☒ GAS CHROMATOGRAPHY (GC)
- ☒ GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS)
- ☐ INFRARED SPECTROSCOPY (IR)

**Laboratory's Conclusion (as explained below): OTHER**

**SPECIAL INSTRUCTIONS:** Compare spill samples to source samples. Further, compare source samples from this case to the source samples from MSL Case 16-144. Samples 16-144-1, 2, 3, 4, 5, and 6 were reanalyzed for comparison purposes.

**RESULTS:**

1. Samples 16-148-9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20 were specified to be representative of various source samples. Analysis indicates:

A. Samples 16-148-9, 10, 11, and 12 are similar to each other and contain lubricating oil. Non-petroleum contamination is present. There were no real differences observed between these samples.

B. Samples 16-148-13, 14, 15, and 16 are similar to each other and contain lubricating oil. Non-petroleum contamination is present. There were no real differences observed between these samples. Samples 16-148-13, 14, 15, and 16 are different from samples 16-148-9, 10, 11, and 12, and the differences are not attributable to non-petroleum contamination.

C. Samples 16-148-17, 18, 19, and 20 are similar to each other and contain lubricating oil. Non-petroleum contamination is present. There were no real differences observed between these samples. Samples 16-148-17, 18, 19, and 20 are different from samples 16-148-9, 10, 11, 12, 13, 14, 15, and 16, and the differences are not attributable to non-petroleum contamination.

2. Spill samples 16-148-1, 2, 3, 4, 5, 6, 7, and 8 contain lubricating oil. However, these samples are not useful for conclusive comparison purposes due to the non-petroleum contamination present in each sample. (NOTE: The non-petroleum contamination is interfering with biomarker ions of interest.)

3. Suspected source samples 16-144-1, 2, 3, 4, 5, and 6 are different from samples 16-148-9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20. The differences are not attributable to non-petroleum contamination.

**SUPERVISOR OF ANALYSIS**

K. JUAIRE

**DATE** 06-Sep-16

**United States Coast Guard  
Marine Safety Laboratory  
Oil Sample Analysis Report  
Continuation  
16-148**

**CONCLUSIONS:**

1. Samples 16-148-9, 10, 11, and 12 represent different portions of the same petroleum oil.
2. Samples 16-148-13, 14, 15, and 16 represent different portions of the same petroleum oil.
3. Samples 16-148-17, 18, 19, and 20 represent different portions of the same petroleum oil.
4. Spill samples 16-148-1, 2, 3, 4, 5, 6, 7, and 8 are not useful for conclusive comparison purposes due to non-petroleum contamination interfering with biomarker profiles.
5. Source samples 16-144-1, 2, 3, 4, 5, and 6 and source samples 16-148-9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20 are not derived from a common source of petroleum oil.

**SUPERVISOR OF ANALYSIS**

K. JUAIRE



**DATE** 06-Sep-16



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**United States Coast Guard  
Marine Safety Laboratory**

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**Oil Spill Identification Analysis  
Cost Recovery Documentation**

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**Laboratory Case Number:** 16-148  
**Requestor:** U. S. EPA Region VI  
**Unit Case Number:** E16620  
**Number of Samples:** 21  
**Cost Per Sample Prepared:** \$20.00  
**Total Costs of Sample Preparation:** \$420.00  
**Number of Analyses:** 56  
**Cost Per Sample Analyzed:** \$86.00  
**Total Costs for Analysis:** \$4,816.00  
**TOTAL COSTS:** \$5,236.00

This documentation is provided for purposes of Phase IV - Documentation and  
Cost Recovery under the National Oil and Hazardous Substances Pollution  
Contingency Plan (40 CFR Part 300)

**Signature:**



**Date:** 06 Sep 2016

**United States Coast Guard  
Marine Safety Laboratory Sample  
Check-In Log**

**MSL Case/Activity Number: 16-148**

**Requestor:** U. S. EPA Region VI

**Unit Case Number:** E16620

**Federal Project Number:** E16620

**Delivery Method:** Federal Express

**Received Date:** 30 Aug 16

**Delivery Number:** 7771 0645 7538

**Priority:** Yes

**Rush:** No

**Comparison:** Yes

Lab ID 16-148	Sample Descriptions from Sample Jars	Spill	Source
1	(b) (6)-11-08262016 PROPERTY (b) (6) - EMULSIFIED LIQUID 8/28/2016 @ 1205 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	(b) (6)-11-08262016 PROPERTY PROPERTY (b) (6) - EMULSIFIED LIQUID 8/26/2016 @ 1205 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	(b) (6)-11-08262016 PROPERTY (b) (6) - EMULSIFIED LIQUID 8/26/2016 @ 1205 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	(b) (6)-11-08262016 PROPERTY (b) (6) - EMULSIFIED LIQUID 8/28/2016 @ 1205 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	(b) (6)-12-08262016 PROPERTY (b) (6) - EMULSIFIED LIQUID 8/28/2016 @ 1210 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	(b) (6)-12-08262016 PROPERTY (b) (6) - EMULSIFIED LIQUID 8/28/2016 @ 1210 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	(b) (6)-12-08262016 PROPERTY (b) (6) - EMULSIFIED LIQUID 8/28/2016 @ 1210 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	(b) (6)-12-08262016 PROPERTY (b) (6) - EMULSIFIED LIQUID 8/28/2016 @ 1210 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9	914F-04-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., CASTROL 5W-30 8/28/2016 @ 1410	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	914F-04-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., CASTROL 5W-30 8/28/2016 @ 1410	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Remarks:</b> Samples 1 through 8 "Spill" designation inferred from CoC. Compare to 16-144.			

**Samples checked in by:** YN2 JAMIE YINGLING

**Date:** 30 Aug 16

**Sample Custodian:** MST2 CHELSEA WARREN

**Date:** 31 AUG 16

**Supervisor of Analysis:** K. JUAIRE

**Date:** 06 Sep 16

**United States Coast Guard  
Marine Safety Laboratory  
Check-In Log**

**MSL Case Number: 16-148**

Lab Number 16-148	Sample Descriptions from Sample Jars	Spill	Source
11	914F-04-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., CASTROL 5W-30 8/28/2016 @ 1410	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12	914F-04-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., CASTROL 5W-30 8/28/2016 @ 1410	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13	914F-05-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., CASTROL 5W-20 8/28/2016 @ 1415	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14	914F-05-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., CASTROL 5W-20 8/28/2016 @ 1415	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15	914F-05-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., CASTROL 5W-20 8/28/2016 @ 1415	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16	914F-05-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., CASTROL 5W-20 8/28/2016 @ 1415	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17	914F-06-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., MOBIL SAE 5W-30 8/28/2016 @ 1420	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18	914F-06-08282016 LARD OIL FACILITY, 914 FLORIDA- MOBIL SAE 5W-30 8/28/2016 @ 1420	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19	914F-06-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., MOBIL SAE 5W-30 8/28/2016 @ 1420	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20	914F-06-08282016 PROPERTY LARD OIL FACILITY, 914 FLORIDA ST., MOBIL SAE 5W-30 8/28/2016 @ 1420	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Samples checked in by: YN2 JAMIE YINGLING

Date: 30 Aug 16

Sample Custodian: MST2 CHELSEA WARREN

Date: 31 AUG 16

Supervisor of Analysis: K. JUAIRE

Date: 06 Sep 16

**United States Coast Guard  
Marine Safety Laboratory Sample  
Check-In Log**

**MSL Case/Activity Number: 16-144**

**Requestor:** U. S. EPA Region VI

**Unit Case Number:** E16620

**Federal Project Number:** E16620

**Delivery Method:** Federal Express

**Received Date:** 23 Aug 16

**Delivery Number:** 7770 5285 1283

**Priority:** Yes

**Rush:** No

**Comparison:** No

Lab ID 16-144	Sample Descriptions from Sample Jars	Spill	Source
1	914F-01-08192016 LARD OIL PROPERTY - WHITE EMULSION 8/19/16 1450	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	914F-01-08192016 LARD OIL PROPERTY - WHITE EMULSION 8/19/16 1450	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	914F-01-08192016 LARD OIL PROPERTY - WHITE EMULSION 8/19/16 1450	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	914F-02-08192016 LARD OIL PROPERTY - OFF-WHITE EMULSION 8/19/16 1500	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	914F-02-08192016 LARD OIL PROPERTY - OFF-WHITE EMULSION 8/19/16 1500	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	914F-02-08192016 LARD OIL PROPERTY - OFF-WHITE EMULSION 8/19/16 1500	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	914F-03-08192016 LARD OIL PROPRTY- DARK COLORED PUDDLED WATER 8/19/16 1515	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	914F-03-08192016 LARD OIL PROPRTY- DARK COLORED PUDDLED WATER 8/19/16 1515	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	914F-03-08192016 LARD OIL PROPRTY- DARK COLORED PUDDLED WATER 8/19/16 1515	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	(b) (6)-01-08192016 PROPERTY (b) (6)- WHITE EMULSION 8/19/16 1109	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Remarks:</b> Sample 27 is ID only.			

**Samples checked in by:** MST3 MOLLY OEFFNER

**Date:** 23 Aug 16

**Sample Custodian:** MST2 CHELSEA WARREN

**Date:** 29 AUG 16

**Supervisor of Analysis:** K. JUAREZ

**Date:** 01 Sep 16



**United States Coast Guard  
Marine Safety Laboratory  
Check-In Log**

**MSL Case Number: 16-144**

Lab Number 16-144	Sample Descriptions from Sample Jars	Spill	Source
11	(b) (6)-01-08192016 PROPERTY (b) (6)- WHITE EMULSION 8/19/16 1109	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	(b) (6)-01-08192016 PROPERTY (b) (6)- WHITE EMULSION 8/19/16 1109	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	(b) (6)-02-08192016 PROPERTY (b) (6)- DARK EMULSION 8/19/16 1130	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	(b) (6)-02-08192016 PROPERTY (b) (6)- DARK EMULSION 8/19/16 1130	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	125H-03-08192016 PROPERTY 125H- OIL-LIKE MATERIAL ON SEDIMENT 08/19/16 1156	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	125H-03-08192016 PROPERTY 125H- OIL-LIKE MATERIAL ON SEDIMENT 08/19/16 1156	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	125H-03-08192016 PROPERTY 125H- OIL-LIKE MATERIAL ON SEDIMENT 08/19/16 1156	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	(b) (6)-04-08192016 PROPERTY (b) (6)- OILED VEGETATION 08/19/16 1159	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19	(b) (6)-04-08192016 PROPERTY (b) (6)- OILED VEGETATION 08/19/16 1159	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	(b) (6)-04-08192016 PROPERTY (b) (6)- OILED VEGETATION 08/19/16 1159	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples checked in by: MST3 MOLLY OEFFNER

Date: 23 Aug 16

Sample Custodian: MST2 CHELSEA WARREN

Date: 29 Aug 16

Supervisor of Analysis: K. JUAREZ

Date: 01 Sep 16

**United States Coast Guard  
Marine Safety Laboratory  
Check-In Log**

**MSL Case Number: 16-144**

Lab Number 16-144	Sample Descriptions from Sample Jars	Spill	Source
21	(b) (6)-05-08192016 PROPERTY (b) (6)- OILED VEGETATION 8/19/16 1207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
22	(b) (6)-05-08192016 PROPERTY (b) (6) OIL VEGETATION 8/19/16 1207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
23	(b) (6)-05-08192016 PROPERTY (b) (6)- OILED VEGETATION 8/19/16 1207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
24	108H-06-08192016 PROPERTY 108H- OILED VEGETATION 8/19/16 1250	<input checked="" type="checkbox"/>	<input type="checkbox"/>
25	108H-06-08192016 PROPERTY 108H- OILED VEGETATION 8/19/16 1250	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26	108H-06-08192016 PROPERTY 108H- OILED VEGETATION 8/19/16 1250	<input checked="" type="checkbox"/>	<input type="checkbox"/>
27	(b) (6)-07-08222016 PROPERTY (b) (6) BATHTUB + FLOOR MATERIAL 8/22/16 1155	<input checked="" type="checkbox"/>	<input type="checkbox"/>
28		<input type="checkbox"/>	<input type="checkbox"/>
29		<input type="checkbox"/>	<input type="checkbox"/>
30		<input type="checkbox"/>	<input type="checkbox"/>

Samples checked in by: MST3 MOLLY OEFFNER

Date: 23 Aug 16

Sample Custodian: MST2 CHELSEA WARREN

Date: 29 AUG 16

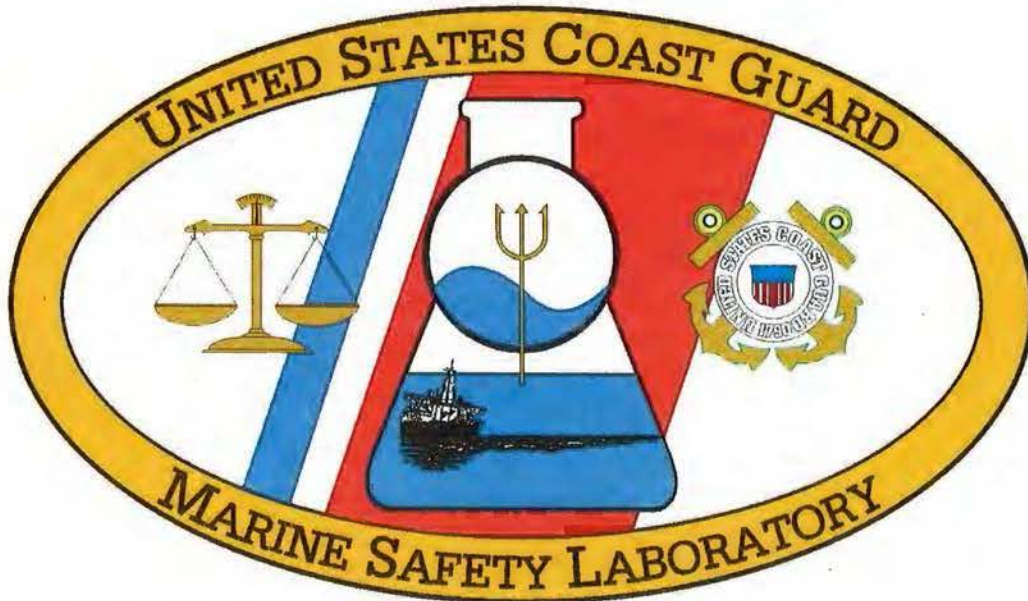
Supervisor of Analysis: K. JUAREZ

Date: 01 Sep 16

# **Oil Sample Analysis Report**

**U. S. EPA Region VI  
Case Number E16620**

**Marine Safety Laboratory  
Case Number 16-147**



U.S. Department of  
Homeland Security

**United States  
Coast Guard**



Manager  
U.S. Coast Guard  
Marine Safety Laboratory

1 Chelsea Street  
New London, CT 06320  
Phone: (860) 271-2704  
Fax: (860) 271-2641

16450  
01 Sep 2016

U. S. Environmental Protection Agency  
Attn: On-Scene Coordinator  
1445 Ross Avenue, Fountain Place 12th Floor, Suite 1200  
Mail Code: 6SF-PR  
Dallas, TX 752022733

Dear On-Scene Coordinator:

The laboratory analysis of this case has been completed and our report is forwarded. The technical data supporting the report (spectrograms and chromatograms) have been archived at our facility and are available upon request. We will maintain the oil samples in refrigerated storage pending final case disposition.

Questions concerning this report or the analytical methods used should be directed to the Supervisor of Analysis.

  
K. JUAIRE

Encl: (1) MSL Report 16-147



**United States Coast Guard  
Marine Safety Laboratory  
Oil Sample Analysis Report  
16-147**

**Requestor:** U. S. EPA Region VI

**Unit Case/Activity Number:** E16620

**Received:** 26-Aug-16

**Via:** Federal Express 7770 8336 8825

**Number Of Samples:** 3

**Lab ID for Spills:** 1, 2, and 3

**Lab ID for Sources:** n/a

**Lab ID for Background:** n/a

**Analysis Methods:**

- ☒ GAS CHROMATOGRAPHY (GC)
- ☒ GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS)
- ☐ INFRARED SPECTROSCOPY (IR)

**Laboratory's Conclusion (as explained below): NON-MATCH**

**SPECIAL INSTRUCTIONS:** Compare to source samples from MSL Case 16-144. Samples 16-144-1, 2, 3, 4, 5, and 6 were reanalyzed for comparison purposes. Samples 16-144-7, 8, and 9 were not reanalyzed because prior analyses determined these samples do not contain a quantity of petroleum oil detectable by the analysis conducted.

**RESULTS:**

1. Samples 16-147-1, 2, and 3 were specified to be representative of spilled oil. Analysis indicates:
  - A. Sample 16-147-1 contains lubricating oil mixed with a small amount of moderately weathered light fuel oil.
  - B. Samples 16-147-2 and 3 do not contain a quantity of petroleum oil detectable by the analysis conducted.
2. Suspected source samples 16-144-4, 5, and 6 contain lubricating oil mixed with a small amount of light fuel oil with characteristics somewhat similar to those of spill sample 16-147-1. However, not all differences are attributable to weathering or non-petroleum contamination.
3. Suspected source samples 16-144-1, 2, and 3 contain lubricating oil mixed with a small amount of light fuel oil with characteristics different from those of spill sample 16-147-1. Differences are not attributable to weathering or non-petroleum contamination.

**CONCLUSIONS:**

1. Suspected source samples 16-144-1, 2, 3, 4, 5, and 6 and spill sample 16-147-1 are not derived from a common source of petroleum oil.
2. Spill samples 16-147-2 and 3 do not contain a quantity of petroleum oil detectable by the analysis conducted.

**SUPERVISOR OF ANALYSIS**

K. JUAIRE



**DATE**

01-Sep-16

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**United States Coast Guard  
Marine Safety Laboratory**

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**Oil Spill Identification Analysis  
Cost Recovery Documentation**

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**Laboratory Case Number:** 16-147  
**Requestor:** U. S. EPA Region VI  
**Unit Case Number:** E16620  
**Number of Samples:** 5  
**Cost Per Sample Prepared:** \$20.00  
**Total Costs of Sample Preparation:** \$100.00  
**Number of Analyses:** 21  
**Cost Per Sample Analyzed:** \$86.00  
**Total Costs for Analysis:** \$1,806.00  
**TOTAL COSTS:** \$1,906.00

This documentation is provided for purposes of Phase IV - Documentation and  
Cost Recovery under the National Oil and Hazardous Substances Pollution  
Contingency Plan (40 CFR Part 300)

**Signature:** \_\_\_\_\_



**Date:** 01 Sep 2016

**United States Coast Guard  
Marine Safety Laboratory Sample  
Check-In Log**

**MSL Case/Activity Number: 16-147**

**Requestor:** U. S. EPA Region VI

**Unit Case Number:** E16620

**Federal Project Number:** E16620

**Delivery Method:** Federal Express

**Received Date:** 26 Aug 16

**Delivery Number:** 7770 8336 8825

**Priority:** Yes

**Rush:** No

**Comparison:** Yes

Lab ID 16-147	Sample Descriptions from Sample Jars	Spill	Source
1	(b) (6)-08-08242016 PROPERTY PROPERTY (b) (6) - SOIL AND ORGANIC MATERIAL 8/24/2016 @ 1415 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	(b) (6)-09-08242016 PROPERTY (b) (6) - BROWN SLUDGE 8/24/2016 @ 1445 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	(b) (6)-10-08242016 PROPERTY (b) (6) - SOIL AND ORGANIC MATERIAL 8/24/2016 @ 1405 HRS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4		<input type="checkbox"/>	<input type="checkbox"/>
5		<input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>	<input type="checkbox"/>
7		<input type="checkbox"/>	<input type="checkbox"/>
8		<input type="checkbox"/>	<input type="checkbox"/>
9		<input type="checkbox"/>	<input type="checkbox"/>
10		<input type="checkbox"/>	<input type="checkbox"/>
<b>Remarks:</b> Compare to MSL Case 16-144.			

**Samples checked in by:** MST2 ANTHONY ECHOLS

**Date:** 26 Aug 16

**Sample Custodian:** MST2 CHELSEA WARREN

**Date:** 30 AUG 16

**Supervisor of Analysis:** K. JUAIRE

**Date:** 01 Sep 16

**United States Coast Guard  
Marine Safety Laboratory Sample  
Check-In Log**

**MSL Case/Activity Number: 16-144**

**Requestor:** U. S. EPA Region VI

**Unit Case Number:** E16620

**Federal Project Number:** E16620

**Delivery Method:** Federal Express

**Received Date:** 23 Aug 16

**Delivery Number:** 7770 5285 1283

**Priority:** Yes

**Rush:** No

**Comparison:** No

Lab ID 16-144	Sample Descriptions from Sample Jars	Spill	Source
1	914F-01-08192016 LARD OIL PROPERTY - WHITE EMULSION 8/19/16 1450	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	914F-01-08192016 LARD OIL PROPERTY - WHITE EMULSION 8/19/16 1450	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	914F-01-08192016 LARD OIL PROPERTY - WHITE EMULSION 8/19/16 1450	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	914F-02-08192016 LARD OIL PROPERTY - OFF-WHITE EMULSION 8/19/16 1500	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	914F-02-08192016 LARD OIL PROPERTY - OFF-WHITE EMULSION 8/19/16 1500	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	914F-02-08192016 LARD OIL PROPERTY - OFF-WHITE EMULSION 8/19/16 1500	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	914F-03-08192016 LARD OIL PROPRTY- DARK COLORED PUDDLED WATER 8/19/16 1515	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	914F-03-08192016 LARD OIL PROPRTY- DARK COLORED PUDDLED WATER 8/19/16 1515	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	914F-03-08192016 LARD OIL PROPRTY- DARK COLORED PUDDLED WATER 8/19/16 1515	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	(b) (6)-01-08192016 PROPERTY (b) (6)- WHITE EMULSION 8/19/16 1109	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Remarks:</b> Sample 27 is ID only.			

**Samples checked in by:** MST3 MOLLY OEFFNER

**Date:** 23 Aug 16

**Sample Custodian:** MST2 CHELSEA WARREN

**Date:** 29 AUG 16

**Supervisor of Analysis:** K. JUAREZ

**Date:** 01 Sep 16



**United States Coast Guard  
Marine Safety Laboratory  
Check-In Log**

**MSL Case Number: 16-144**

Lab Number 16-144	Sample Descriptions from Sample Jars	Spill	Source
11	(b) (6)-01-08192016 PROPERTY (b) (6)- WHITE EMULSION 8/19/16 1109	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	(b) (6)-01-08192016 PROPERTY (b) (6)- WHITE EMULSION 8/19/16 1109	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	(b) (6)-02-08192016 PROPERTY (b) (6)- DARK EMULSION 8/19/16 1130	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	(b) (6)-02-08192016 PROPERTY (b) (6)- DARK EMULSION 8/19/16 1130	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	125H-03-08192016 PROPERTY 125H- OIL-LIKE MATERIAL ON SEDIMENT 08/19/16 1156	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	125H-03-08192016 PROPERTY 125H- OIL-LIKE MATERIAL ON SEDIMENT 08/19/16 1156	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	125H-03-08192016 PROPERTY 125H- OIL-LIKE MATERIAL ON SEDIMENT 08/19/16 1156	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	(b) (6)-04-08192016 PROPERTY (b) (6)- OILED VEGETATION 08/19/16 1159	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19	(b) (6)-04-08192016 PROPERTY (b) (6)- OILED VEGETATION 08/19/16 1159	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	(b) (6)-04-08192016 PROPERTY (b) (6)- OILED VEGETATION 08/19/16 1159	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples checked in by: MST3 MOLLY OEFFNER

Date: 23 Aug 16

Sample Custodian: MST2 CHELSEA WARREN

Date: 29 Aug 16

Supervisor of Analysis: K. JUAREZ

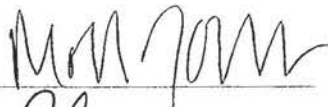
Date: 01 Sep 16

**United States Coast Guard  
Marine Safety Laboratory  
Check-In Log**

**MSL Case Number: 16-144**

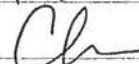
Lab Number 16-144	Sample Descriptions from Sample Jars	Spill	Source
21	(b) (6)-05-08192016 PROPERTY (b) (6)- OILED VEGETATION 8/19/16 1207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
22	(b) (6)-05-08192016 PROPERTY (b) (6)- OIL VEGETATION 8/19/16 1207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
23	(b) (6)-05-08192016 PROPERTY (b) (6)- OILED VEGETATION 8/19/16 1207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
24	108H-06-08192016 PROPERTY 108H- OILED VEGETATION 8/19/16 1250	<input checked="" type="checkbox"/>	<input type="checkbox"/>
25	108H-06-08192016 PROPERTY 108H- OILED VEGETATION 8/19/16 1250	<input checked="" type="checkbox"/>	<input type="checkbox"/>
26	108H-06-08192016 PROPERTY 108H- OILED VEGETATION 8/19/16 1250	<input checked="" type="checkbox"/>	<input type="checkbox"/>
27	(b) (6)-07-08222016 PROPERTY (b) (6)- BATHTUB + FLOOR MATERIAL 8/22/16 1155	<input checked="" type="checkbox"/>	<input type="checkbox"/>
28		<input type="checkbox"/>	<input type="checkbox"/>
29		<input type="checkbox"/>	<input type="checkbox"/>
30		<input type="checkbox"/>	<input type="checkbox"/>

Samples checked in by: MST3 MOLLY OEFFNER



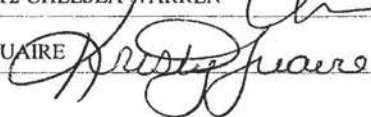
Date: 23 Aug 16

Sample Custodian: MST2 CHELSEA WARREN



Date: 29 AUG 16

Supervisor of Analysis: K. JUAREZ



Date: 01 Sep 16

**ATTACHMENT J**

**ANALYTICAL RESULTS SUMMARY**

Attachment J  
Analytical Results Summary  
Lard Oil Company Oil Sprill  
Denham Springs, Livingston Parish, Louisiana

Sample ID	Analytical Result (Oil Identification and Comparison)
<b>Potential Source Samples</b>	
914F-01-08192016	Primarily lubricating oil. Not derived from common source of oil with potential source samples 914F-04-08282016, 914F-05-08282016, or 914F-06-08282016.
914F-02-08192016	Primarily lubricating oil. Not derived from common source of oil with potential source samples 914F-04-08282016, 914F-05-08282016, or 914F-06-08282016.
914F-03-08192016	Non-detect.
914F-04-08282016	Lubricating oil. ( <i>Bulk product sample: Castrol 5W-30 motor oil</i> )
914F-05-08282016	Lubricating oil. ( <i>Bulk product sample: Castrol 5W-20 motor oil</i> )
914F-06-08282016	Lubricating oil. ( <i>Bulk product sample: Mobil 5W-30 motor oil</i> )
<b>Off-site Spill Samples</b>	
(b) (6)-01-08192016	Primarily lubricating oil. Important similarities suggest it is related to potential source sample 914F-02-08192016, as well as spill samples (b) (6)-04-08192016, (b) (6)-05-08192016, and 108H-06-08192016. Not all differences, however, are attributable to weathering or non-petroleum contamination.
(b) (6)-02-08192016	Lubricating Oil. Not enough quantity for comparison.
125H-03-08192016	Non-detect.
(b) (6)-04-08192016	Primarily lubricating oil. Important similarities suggest it is related to potential source sample 914F-02-08192016, as well as spill samples (b) (6)-01-08192016, (b) (6)-05-08192016, and (b) (6)-06-08192016. Not all differences, however, are attributable to weathering or non-petroleum contamination.
(b) (6)-05-08192016	Primarily lubricating oil. Important similarities suggest it is related to potential source sample 914F-02-08192016, as well as spill samples (b) (6)-04-08192016, (b) (6)-01-08192016, and 108H-06-08192016. Not all differences, however, are attributable to weathering or non-petroleum contamination.
108H-06-08192016	Primarily lubricating oil. Important similarities suggest it is related to potential source sample 914F-02-08192016, as well as spill samples (b) (6)-04-08192016, (b) (6)-05-08192016, and (b) (6)-01-08192016. Not all differences, however, are attributable to weathering or non-petroleum contamination.
(b) (6)-07-08222016	Non-detect.
(b) (6)-08-08242016	Contains lubricating oil mixed with a small amount of moderately weathered light fuel oil. Not derived from a common source of oil with any of the 6 potential source samples.
(b) (6)-09-08242016	Non-detect.
(b) (6)-10-08242016	Non-detect.



Attachment J (Continued)  
Analytical Results Summary  
Lard Oil Company Oil Spill  
Denham Springs, Livingston Parish, Louisiana

Off-site Spill Samples	
(b) (6)-11-08262016	Identified as lubricating oil; however, the samples were not useful for conclusive comparison purposes to potential source samples due to the presence of non-petroleum contamination which interfered with biomarker ions of interest.
(b) (6)-12-08262016	Identified as lubricating oil; however, the samples were not useful for conclusive comparison purposes to potential source samples due to the presence of non-petroleum contamination which interfered with biomarker ions of interest.



**ATTACHMENT K**

**NRC REPORT NOS. 1156486 AND 1156749**

Submit Action Report

Spill Summary Report

NATIONAL RESPONSE CENTER 1-800-424-8802  
\*\*\*GOVERNMENT USE ONLY\*\*\*GOVERNMENT USE ONLY\*\*\*  
Information released to a third party shall comply with any  
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1156486

INCIDENT DESCRIPTION

\*Report taken by: MST1 ERIC MERRITT at 09:09 on 17-AUG-16  
Incident Type: FIXED  
Incident Cause: FLOOD  
Affected Area:  
Incident was discovered on 16-AUG-16 at 15:00 local incident time.  
Affected Medium: LAND      RESIDENTIAL NEIGHBORHOOD

REPORTING PARTY

Name: (b) (6)

Address: (b) (6)  
(b) (6)

PRIMARY Phone: (b) (6)

SUSPECTED RESPONSIBLE PARTY

Name: UNKNOWN  
Organization: LARD OIL  
DENHAM SPRINGS, LA

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

(b) (6)  
(b) (6)

RELEASED MATERIAL(S)

CHRIS Code: OUN      Official Material Name: UNKNOWN OIL  
Also Known As:  
Qty Released: 0 UNKNOWN AMOUNT      Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER STATED THAT DURING THE FLOODS THERE WAS A LARGE AMOUNT OF AN UNKNOWN  
OIL RELEASED FROM THE FACILITY AND HAS IMPACTED RESIDENTIAL HOUSES IN THE AREA.

INCIDENT DETAILS

Package: NO  
Building ID:  
Type of Fixed Object: REFINERY  
Power Generating Facility: NO  
Generating Capacity:  
Type of Fuel:  
NPDES:  
NPDES Compliance: UNKNOWN

IMPACT

Fire Involved: NO	Fire Extinguished: UNKNOWN		
INJURIES: NO	Hospitalized:	Empl/Crew:	Passenger:
FATALITIES: NO	Empl/Crew:	Passenger:	Occupant:
EVACUATIONS: NO	Who Evacuated:	Radius/Area:	
Damages: NO		Hours	Direction of
Closure Type	Description of Closure	Closed	Closure
Air: N			
Road: N			Major Artery: N
Waterway: N			
Track: N			

Passengers Transferred: NO  
Environmental Impact: YES/VEGETATION  
Media Interest: UNKNOWN      Community Impact due to Material:

REMEDIAL ACTIONS

Release Secured: UNKNOWN  
Release Rate:  
Estimated Release Duration:

WEATHER

ADDITIONAL AGENCIES NOTIFIED

Federal:  
State/Local:  
State/Local On Scene:  
State Agency Number:

NOTIFICATIONS BY NRC

CENTERS FOR DISEASE CONTROL (GRASP)  
17-AUG-16 09:20 (770)4887100  
CHEM SAFETY AND HAZARD INVEST BOARD (CSB AUTOMATIC NOTIFICATIONS)  
17-AUG-16 09:20 (202)3780334  
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)  
17-AUG-16 09:20 (202)3661863  
U.S. EPA VI (MAIN OFFICE)  
17-AUG-16 09:23 (866)3727745 TODD  
FEDERAL EMERGENCY MANAGEMENT AGENCY (MAIN OFFICE)  
17-AUG-16 09:20 (800)6347084  
FLD INTEL SUPPORT TEAM NEW ORLEANS (SUPERVISOR, FIST NEW ORLEANS)  
17-AUG-16 09:20 (504)5894224  
INFO ANALYSIS AND INFRA PROTECTION (MAIN OFFICE)  
17-AUG-16 09:20  
JFO-LA (COMMAND CENTER)  
17-AUG-16 09:20 (225)3366513  
JFO-LA (FEMA JFO LA)  
17-AUG-16 09:20 (225)3366513  
LA DEPT OF ENV QUAL (MAIN OFFICE)  
17-AUG-16 09:20 (225)2193640  
LA DEPT OF NATURAL RESOURCES (OFFICE OF CONSERVATION)  
17-AUG-16 09:20 (225)3425524  
LA DEPT OF WILDLIFE AND FISHERIES (MAIN OFFICE)  
17-AUG-16 09:20 (337)  
LA GOV OFFICE HS AND EMERGENCY PREP (MAIN OFFICE)  
17-AUG-16 09:20 (225)9257500  
LA GOV OFFICE HS AND EMERGENCY PREP (LA ANALYTICAL AND FUSION EXCHANGE (GOHSEP)  
17-AUG-16 09:20 (225)9253674  
LA OFFICE OF GOV (MAIN OFFICE)  
17-AUG-16 09:20 (225)2195800  
LA OFFICE OF PUBLIC HEALTH (MAIN OFFICE)  
17-AUG-16 09:20 (888)2937020  
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)  
17-AUG-16 09:20 (202)2829201  
NOAA RPTS FOR LA (MAIN OFFICE)  
17-AUG-16 09:20 (206)5264911  
NATIONAL RESPONSE CENTER HQ (AUTOMATIC REPORTS)  
17-AUG-16 09:20 (202)2671136  
SECTOR NEW ORLEANS (MSU BATON ROUGE)  
17-AUG-16 09:20 (225)2985400  
LA STATE POLICE (MAIN OFFICE)  
17-AUG-16 09:20 (225)9256595  
MSU BATON ROUGE (MAIN OFFICE)  
17-AUG-16 09:20 (225)2985400  
DEPT OF ENERGY STPR (STRATEGIC PETROLEUM RESERVE-EMERGENCY MGMT)  
17-AUG-16 09:20 (504)7344113  
USCG DISTRICT 8 (MAIN OFFICE)  
17-AUG-16 09:20 (504)5896225  
USCG DISTRICT 8 (PLANNING)  
17-AUG-16 09:20 (504)6712080

ADDITIONAL INFORMATION

CALLER STATED THAT THE FACILITY HAS A LOT OF CONTAINERS TIPPED OVER AND PUSHING AGAINST THE FENCE.

\*\*\* END INCIDENT REPORT # 1156486 \*\*\*  
Report any problems by calling 1-800-424-8802  
PLEASE VISIT OUR WEB SITE AT <http://www.nrc.uscg.mil>

Close Window

## Extended Spill Summary Report for DataID #2010613

Report Date: 8/19/2016

Report Time: 3:29 PM

## Hotline Log Entry Information

Data ID: 2010613  
Date Of Report: 19-AUG-16 13:59 NRC #: 1156749 State #: ERNS #:  
Material Type: Oil Receiver: Hayes  
Material / Amount: OIL, MISC: LUBRICATING (0 UNKNOWN AMOUNT); OIL, MISC: MOTOR (0 UNKNOWN AMOUNT);  
Location: City: DENHAM SPRINGS  
County: LIVINGSTON  
State: LA  
Source of Pollution: LARD OIL COMPANY INC.  
Water Body: FLOOD WATER  
State Or EPA Responded: RAIN - LDEQ Responded. EPA OSC and START were deployed to provide oversight of RPs response actions and assessing extent of contamination.  
Initial EPA Action: Initial notification report NRC#1156486.  
Status: 2 - Closed  
URL:

## Associated NRC Report

NATIONAL RESPONSE CENTER 1-800-424-8802  
\*\*\*GOVERNMENT USE ONLY\*\*\*GOVERNMENT USE ONLY\*\*\*  
Information released to a third party shall comply with any  
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1156749

INCIDENT DESCRIPTION

\*Report taken by: MST3 STEPHEN COOKE at 13:59 on 19-AUG-16  
Incident Type: FIXED  
Incident Cause: FLOOD  
Affected Area: FLOOD WATER  
Incident was discovered on 19-AUG-16 at 10:00 local incident time.  
Affected Medium: WATER OIL WASHED OUT WITH FLOOD WATER

REPORTING PARTY

Name: SEAN ABBY  
Organization: PPM CONSULTANTS

PPM CONSULTANTS reported for the responsible party.  
PRIMARY Phone: (318)3237270  
Type of Organization: PRIVATE ENTERPRISE

SUSPECTED RESPONSIBLE PARTY

Name: JOHNNY MILAZZO  
Organization: LARD OIL COMPANY INC.  
Address: 914 FLORIDA BLVD  
DENHAM SPRINGS, LA  
PRIMARY Phone: (225)6643311  
Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

914 FLORIDA BLVD County: LIVINGSTON  
City: DENHAM SPRINGS State: LA

RELEASED MATERIAL(S)

CHRIS Code: OLB Official Material Name: OIL, MISC: LUBRICATING  
Also Known As:  
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT  
CHRIS Code: OMT Official Material Name: OIL, MISC: MOTOR  
Also Known As:  
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER IS REPORTING THAT A BULK STORAGE FACILITY WAS AFFECTED BY RECENT  
FLOOD AND INCLEMENT WEATHER RESULTING IN A DISCHARGE OF AN UNKNOWN AMOUNT  
OF LUBE OIL AND MOTOR OIL INTO THE FLOOD WATERS.

INCIDENT DETAILS

Package: NO  
Building ID:  
Type of Fixed Object: OTHER

Power Generating Facility: UNKNOWN  
Generating Capacity:  
Type of Fuel:  
NPDES:  
NPDES Compliance: UNKNOWN

---WATER INFORMATION---

Body of Water: FLOOD WATER  
Tributary of:  
Nearest River Mile Marker:  
Water Supply Contaminated: UNKNOWN

---

IMPACT

Fire Involved: UNKNOWN    Fire Extinguished: UNKNOWN  
INJURIES:            UNKNOWN    Hospitalized:            Empl/Crew:            Passenger:  
FATALITIES:        NO        Empl/Crew:            Passenger:            Occupant:  
EVACUATIONS:       NO        Who Evacuated:            Radius/Area:  
  
Damages:            NO

		Hours	Direction of
<u>Closure Type</u>	<u>Description of Closure</u>	<u>Closed</u>	<u>Closure</u>
Air:	N		
Road:	N		Major Artery: N
Waterway:	N		
Track:	N		

Passengers Transferred: NO  
Environmental Impact: UNKNOWN  
Media Interest: UNKNOWN    Community Impact due to Material:

---

REMEDIAL ACTIONS

CONTRACTORS ON SITE PERFORMING CLEANUP ACTIVITIES.  
Release Secured: UNKNOWN  
Release Rate:  
Estimated Release Duration:

---

WEATHER

---

ADDITIONAL AGENCIES NOTIFIED

Federal:            EPA VI  
State/Local:        DEQ  
State/Local On Scene:  
State Agency Number:

---

NOTIFICATIONS BY NRC

CENTERS FOR DISEASE CONTROL (GRASP)  
19-AUG-16 14:07 (770)4887100  
DHS NOC (NOC)  
19-AUG-16 14:07 (202)2828114  
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)  
19-AUG-16 14:07 (202)3661863  
U.S. EPA VI (MAIN OFFICE)  
19-AUG-16 14:10 (866)3727745 HAYES  
FEDERAL EMERGENCY MANAGEMENT AGENCY (MAIN OFFICE)  
19-AUG-16 14:07 (800)6347084  
FLD INTEL SUPPORT TEAM NEW ORLEANS (SUPERVISOR, FIST NEW ORLEANS)  
19-AUG-16 14:07 (504)5894224  
INFO ANALYSIS AND INFRA PROTECTION (MAIN OFFICE)  
19-AUG-16 14:07  
JFO-LA (COMMAND CENTER)  
19-AUG-16 14:07 (225)3366513  
JFO-LA (FEMA JFO LA)  
19-AUG-16 14:07 (225)3366513  
LA DEPT OF ENV QUAL (MAIN OFFICE)  
19-AUG-16 14:07 (225)2193640  
LA DEPT OF NATURAL RESOURCES (OFFICE OF CONSERVATION)  
19-AUG-16 14:07 (225)3425524  
LA GOV OFFICE HS AND EMERGENCY PREP (MAIN OFFICE)  
19-AUG-16 14:07 (225)9257500  
LA GOV OFFICE HS AND EMERGENCY PREP (LA ANALYTICAL AND FUSION EXCHANGE (GOHSEP)  
19-AUG-16 14:07 (225)9253674  
LA OFFICE OF GOV (MAIN OFFICE)  
19-AUG-16 14:07 (225)2195800  
LA OFFICE OF PUBLIC HEALTH (MAIN OFFICE)  
19-AUG-16 14:07 (888)2937020  
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)  
19-AUG-16 14:07 (202)2829201  
NOAA RPTS FOR LA (MAIN OFFICE)

19-AUG-16 14:07 (206)5264911  
NATIONAL RESPONSE CENTER HQ (AUTOMATIC REPORTS)  
19-AUG-16 14:07 (202)2671136  
SECTOR NEW ORLEANS (MSU BATON ROUGE)  
19-AUG-16 14:07 (225)2985400  
LA STATE POLICE (MAIN OFFICE)  
19-AUG-16 14:07 (225)9256595  
MSU BATON ROUGE (MAIN OFFICE)  
19-AUG-16 14:07 (225)2985400  
DEPT OF ENERGY STPR (STRATEGIC PETROLEUM RESERVE-EMERGENCY MGMT)  
19-AUG-16 14:07 (504)7344113  
USCG DISTRICT 8 (MAIN OFFICE)  
19-AUG-16 14:07 (504)5896225  
USCG DISTRICT 8 (PLANNING)  
19-AUG-16 14:07 (504)6712080

---

ADDITIONAL INFORMATION

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\*\*\* END INCIDENT REPORT # 1156749 \*\*\*  
Report any problems by calling 1-800-424-8802  
PLEASE VISIT OUR WEB SITE AT <http://www.nrc.uscg.mil>

**ATTACHMENT L**

**POLLUTION REPORTS**



U.S. ENVIRONMENTAL PROTECTION AGENCY  
POLLUTION/SITUATION REPORT  
Lard Oil Company, Inc. Oil Spill - Removal Polrep  
Initial Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region VI

**Subject:** POLREP #1  
Initial  
Lard Oil Company, Inc. Oil Spill  
  
Denham Springs, LA  
Latitude: 30.4757117 Longitude: -90.9598454

**To:** Bryan Riche, LDEQ  
Reggie Cheatham, USEPA OEM  
Ronald D. Crossland, USEPA R6 - EMB  
Raoult Ratard, MD, LDHH  
Marty Chabert, LOSCO

**From:** Bryant Smalley, FOSC

**Date:** 8/21/2016

**Reporting Period:** 8/18-20/2016

## 1. Introduction

### 1.1 Background

<b>Site Number:</b>	<b>Contract Number:</b>
<b>D.O. Number:</b>	<b>Action Memo Date:</b>
<b>Response Authority:</b> OPA	<b>Response Type:</b> Emergency
<b>Response Lead:</b> PRP	<b>Incident Category:</b> Removal Assessment
<b>NPL Status:</b> Non NPL	<b>Operable Unit:</b>
<b>Mobilization Date:</b> 8/18/2016	<b>Start Date:</b> 8/18/2016
<b>Demob Date:</b>	<b>Completion Date:</b>
<b>CERCLIS ID:</b>	<b>RCRIS ID:</b>
<b>ERNS No.:</b> 1156486	<b>State Notification:</b> 8/16/2016
<b>FPN#:</b> E16620	<b>Reimbursable Account #:</b>

#### 1.1.1 Incident Category

Oil Pollution Act Discharge Assessment/Response

#### 1.1.2 Site Description

On August 18, 2016, EPA responded to a report of an oil spill from Lard Oil Co., an oil distribution facility at 914 Florida Ave. SW, in Denham Springs, Livingston Parish Louisiana. Slow moving storms dropped more than two feet of rain around Denham Springs causing flooding of the Amite River August 13-14, 2016. Floodwaters displaced oil containers and discharged an unknown volume of oil from the facility, to the surrounding neighborhood. It appears to be a localized incident and the discharge consisted of predominately lubricating oil. Early estimates were that 2-3 dozen residential yards and 6-10 homes are affected.

##### 1.1.2.1 Location

The Site of the discharge is located at 914 Florida, Ave. SW, Denham Springs, Livingston Parish Louisiana, at 30.4757117°, -90.9598454°. Impacted homes appear to be primarily southeast of the facility along

(b) (6) as well as cross streets to (b) (6)

##### 1.1.2.2 Description of Threat

An unknown volume of oil discharged from the facility. Reports indicate several mobile storage tanks may have overturned and discharged oil from the facility and multiple smaller containers, including totes drums and buckets, were displaced off the facility property. Discharged oil impacted homes, vegetation and yards before being carried away in floodwaters. Stormwater drains to Grays Creek; thence to the Amite River, which flows to Lake Maurepas and Lake Pontchartrain, which meet the definition of "navigable waters" of the United States (US) as defined in Section 502(7) of the Federal Water Pollution Control Act (FWPCA).

##### 1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Preliminary assessment indicates the discharged oil was predominately lubricating oil and has impacted an estimated 41 residential yards and 6-10 homes. Additionally, oil was identified in ditches and storm drains, within the impacted area.

## 2. Current Activities

### 2.1 Operations Section

#### 2.1.1 Narrative

#### 2.1.2 Response Actions to Date

On August 18, 2016, EPA responded to NRC Report # 1156486 and conducted an assessment of the situation. EPA documented displaced oil tanks at the back of the facility and within resident's yards, oil in the roadside ditches and oil stains leading from the facility. After conducting the initial assessment, EPA contacted the Responsible Party (RP), Lard Oil Company, to notify them of the discharge, inform them of their responsibilities and issued them a Notice of Federal Interest. On August 19, 2016, Lard Oil Co. had a crew of approximately 30 people cleaning up pooled and standing oil in roadside ditches and residents yards to prevent further migration of the oil. Several homeowners had concerns about whether the oil presented acute health concern due to vapors within the homes. Therefore, EPA conducted screenings in multiple homes for Volatile Organic Compounds (VOCs) and found no levels over 1 ppm. The RP has hired PPM Associates to conduct the assessment and manage the removal actions.

August 19-20, 2016, Response activities focused on obtaining access agreements and conducting screenings of individual properties and homes to delineate the extent of the impact. During this screening, several areas of heavy accumulated oil was identified and clean-up crews began removing the oil.

### 2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

Lard Oil Company, 914 Florida Ave. SW, in Denham Springs, Livingston Parish Louisiana, is the responsible party of this incident. A Notice of Federal Interest (NOFI) was sent to the RP on August 18, 2016.

### 2.1.4 Progress Metrics

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>

## 2.2 Planning Section

### 2.2.1 Anticipated Activities

EPA and the RP's contractor (PPM Associates) are each acquiring access agreements individually and EPA is providing oversight while they conduct property specific assessments, so crews can begin more comprehensive removal of the oil. EPA will continue oversight and coordinating efforts to ensure that oil recovery is completed.

#### 2.2.1.1 Planned Response Activities

All homes within the impacted area were also impacted by floodwaters between 4-6 feet deep. Oil impacts predominately consist of an oil residual or stain on fences vegetation and building with intermittent areas of accumulated oil. Residents are already emptying homes and removing sheetrock, therefore a plan is being developed to address property specific needs for removing any residual oil.

#### 2.2.1.2 Next Steps

EPA requested the RP to develop property specific plans to address the oil contamination on each property. EPA and LDEQ will review the response plans and provide oversight of cleanup and is requesting input from the Health Department on any potential health concerns.

### 2.2.2 Issues

Rain showers in the area may are mobilizing oil in ditches and culverts, so daily monitoring is being conducted.

## 2.3 Logistics Section

No information available at this time.

## 2.4 Finance Section

### 2.4.1 Narrative

Federal Project Number E16620 was opened to support EPA's response. Currently, the FPN ceiling is \$40,000.

## 2.5 Other Command Staff

No information available at this time.

## 3. Participating Entities

### 3.1 Unified Command

### 3.2 Cooperating Agencies

LDEQ

## 4. Personnel On Site

No information available at this time.

## 5. Definition of Terms

- bbls – barrels
- EPA – Environmental Protection Agency
- NOFI – Notice of Federal Interest
- OSC – On-Scene Coordinator
- RP – Responsible Parties
- START – Superfund Technical Assessment and Response Team
- LDEQ – Louisiana Department of Environmental Quality

yd<sup>3</sup> – cubic yard

## **6. Additional sources of information**

### **6.1 Internet location of additional information/report**

[www.epaosc.org/lardoilcompany](http://www.epaosc.org/lardoilcompany)

### **6.2 Reporting Schedule**

## **7. Situational Reference Materials**

No information available at this time.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region VI

**Subject:** POLREP #2  
Update - Final  
Lard Oil Company, Inc. Oil Spill  
  
Denham Springs, LA  
Latitude: 30.4757117 Longitude: -90.9598454

**To:** Bryan Riche, LDEQ  
Reggie Cheatham, USEPA OEM  
Ronald D. Crossland, USEPA R6 - EMB  
Raoult Ratard, MD, LDHH  
Marty Chabert, LOSCO

**From:** Bryant Smalley, FOSC

**Date:** 9/29/2016

**Reporting Period:** 8/21/2016-9/29/2016

## 1. Introduction

### 1.1 Background

<b>Site Number:</b>	V6RW	<b>Contract Number:</b>	
<b>D.O. Number:</b>		<b>Action Memo Date:</b>	
<b>Response Authority:</b>	OPA	<b>Response Type:</b>	Emergency
<b>Response Lead:</b>	PRP	<b>Incident Category:</b>	Removal Action
<b>NPL Status:</b>	Non NPL	<b>Operable Unit:</b>	
<b>Mobilization Date:</b>	8/18/2016	<b>Start Date:</b>	8/18/2016
<b>Demob Date:</b>	9/29/2016	<b>Completion Date:</b>	9/29/2016
<b>CERCLIS ID:</b>		<b>RCRIS ID:</b>	
<b>ERNS No.:</b>	1156486	<b>State Notification:</b>	8/16/2016
<b>FPN#:</b>	E16620	<b>Reimbursable Account #:</b>	

#### 1.1.1 Incident Category

Oil Pollution Act Discharge Assessment/Response

#### 1.1.2 Site Description

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##### 1.1.2.1 Location

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##### 1.1.2.2 Description of Threat

An unknown volume of oil discharged from the facility. Reports indicate several mobile storage tanks may have overturned and discharged oil from the facility and multiple smaller containers, including totes drums and buckets, were displaced off the facility property. Discharged oil impacted homes, vegetation and yards before being carried away in floodwaters. Stormwater drains to Grays Creek; thence to the Amite River, which flows to Lake Maurepas and Lake Pontchartrain, which meet the definition of "navigable waters" of the United States (US) as defined in Section 502(7) of the Federal Water Pollution Control Act (FWPCA).

##### 1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Preliminary assessment indicates the discharged oil was predominately lubricating oil and has impacted an estimated 41 residential yards and 6-10 homes. Additionally, oil was identified in ditches and storm drains, within the impacted area.

## 2. Current Activities

### 2.1 Operations Section

#### 2.1.1 Narrative

#### 2.1.2 Response Actions to Date

On August 18, 2016, EPA responded to NRC Report # 1156486 and conducted an assessment of the

situation. EPA documented displaced oil tanks at the back of the facility and within resident's yards, oil in the roadside ditches and oil stains leading from the facility. After conducting the initial assessment, EPA contacted the Responsible Party (RP), Lard Oil Company, to notify them of the discharge, inform them of their responsibilities and issued them a Notice of Federal Interest. On August 19, 2016, Lard Oil Co. had a crew of approximately 30 people cleaning up pooled and standing oil in roadside ditches and residents yards to prevent further migration of the oil. Several homeowners had concerns about whether the oil presented acute health concern due to vapors within the homes. Therefore, EPA conducted screenings in multiple homes for Volatile Organic Compounds (VOCs) and found no levels over 1 ppm. The RP has hired PPM Associates to conduct the assessment and manage the removal actions.

August 19-20, 2016, Response activities focused on obtaining access agreements and conducting screenings of individual properties and homes to delineate the extent of the impact. During this screening, several areas of heavy accumulated oil was identified and clean-up crews began removing the oil.

August 21-30, 2016, EPA and PPM are each continuing to acquire access agreements from property owners. Currently, 72 properties have been identified within the impact area. Access agreements have been acquired by both EPA and PPM for 55 properties. Additionally, homeowners have denied access to 6 properties. 46 properties have been identified with oil in the yards and 39 have some oil on the outside of the house. EPA has identified 7 houses/offices that potentially have some oil inside. Due to materials being carried in floodwater, samples were collected in some of the homes to verify whether any questionable material was petroleum..

The RP's contractor has been cutting and bagging oiled vegetation and mowing grass at impacted properties. Grass contaminated with oil is being bagged, while uncontaminated grass is being mulched in place. Bags of oil impacted grass and woody vegetation are being staged for waste profile and disposal. Wood fence panels with oil stains are being removed and staged for disposal. Buildings with oil on the outside are being hand wiped with a degreaser and pressure washed. Additionally, two ditches have been scraped out to remove oily soil and oil impacted soil in yards is currently being scheduled. EPA is providing oversight of the removal activities and has taken multiple samples of oily materials to document it origins.

Most residents have already emptied their homes and removed flood damaged sheetrock and insulation. LDEQ has determined that limited oil sheening or residual on building materials would be de-minimis and could be disposed of with other flood debris.

August 31, 2016 - Personnel from the Louisiana Department of Health and Hospitals (LDHH) made a site visit. LDHH toured the neighborhood and observed the impacted properties. LDHH agreed to take the lead for questions or concerns related to the interior rehabilitation/ clearance of residential properties. EPA also met with LDEQ to discuss future oversight of soil remediation. They agreed to provide oversight of the RP's future soil remediation activities, once visible oil was removed from properties where access has been granted.

September 1-14, 2016 - EPA provided oversight of the Lard Oil spill cleanup activities. Due to delays in approval of the Sample and Analysis Plan, work activities slowed down. The RP continues removing stained vegetation and has started scraping contaminated surface soils.

September 15-28, 2016 - Upon approval of the Sampling and Analysis Plan, the RP excavated visually contaminated soil and conducted confirmation sampling from the properties that have granted access. Visual oil staining was excavated and the soil was screened with a Volatile Organic Compound (VOC) meter prior to taking the sample. EPA provided oversight and documented progress. On September 28, contractors completed the soil removal and confirmation sampling.

September 29, 2016 – OSC Smalley Conducted a final Site walk to verify visible oil had been removed from properties where access was granted. All areas identified as oil impacted, where access was granted, appeared cleaned up. Minor staining was still noted on several chain-link fences and trees, but the RP is still waiting on the property owners to determine if these items should be removed. As agreed upon with LDEQ, visible oil removal has been completed and all further remediation activities will be turned over to LDEQ. LDHH will continue as the lead related to questions or concerns with the interior of residential properties.

### 2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

Lard Oil Company, 914 Florida Ave. SW, in Denham Springs, Livingston Parish Louisiana, is the responsible party of this incident. A Notice of Federal Interest (NOFI) was sent to the RP on August 18, 2016.

### 2.1.4 Progress Metrics

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>

## 2.2 Planning Section

### 2.2.1 Anticipated Activities

No additional EPA activities are expected. LDEQ is providing future oversight of the RP's soil remediation activities. LDHH is the lead for questions or concerns related to the interior rehabilitation/clearance of residential properties.

#### 2.2.1.1 Planned Response Activities

#### 2.2.1.2 Next Steps

See above.

#### 2.2.2 Issues

### **2.3 Logistics Section**

No information available at this time.

## **2.4 Finance Section**

### **2.4.1 Narrative**

Federal Project Number E16620 was opened to support EPA's response.

### **2.5 Other Command Staff**

No information available at this time.

## **3. Participating Entities**

### **3.1 Unified Command**

### **3.2 Cooperating Agencies**

LDEQ - Louisiana Department of Environmental Quality

LDHH - Louisiana Department of Health and Hospitals

## **4. Personnel On Site**

No information available at this time.

## **5. Definition of Terms**

bbls – barrels

EPA – Environmental Protection Agency

NOFI – Notice of Federal Interest

OSC – On-Scene Coordinator

RP – Responsible Parties

START – Superfund Technical Assessment and Response Team

LDEQ – Louisiana Department of Environmental Quality

yd<sup>3</sup> – cubic yard

## **6. Additional sources of information**

### **6.1 Internet location of additional information/report**

[www.epaosc.org/lardoilcompany](http://www.epaosc.org/lardoilcompany)

### **6.2 Reporting Schedule**

## **7. Situational Reference Materials**

No information available at this time.

**ATTACHMENT M**

**DIGITAL PHOTOGRAPHS**

**Will be provided with the Final Report CD.**

**ATTACHMENT N**

**SITE LOGBOOKS**

**Will be provided with the Final Report CD.**



**ATTACHMENT O**

**TDD NO. 2/WESTON-042-16-020**

U.S. EPA, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733  
Vendor : WESTON SOLUTIONS, INC.

TDD # : 2/WESTON-042-16-020  
Amendment # :  
Contract # : EP-W-06-042

TDD Title :Lard Oil Company  
Purpose : TDD INITIATION  
  
Priority : HIGH  
Overtime Authorized : No  
Invoice Unit :

Verbal Date : 08/19/2016  
Start Date : 08/19/2016  
Completion Date : 01/13/2017  
Effective Date : 08/19/2016

SSID : V6RW  
Project/Site Name : LARD OIL COMPANY  
Project Address : 914 Florida Ave. SW  
County : Livingston  
City : Denham Springs  
State : LA  
Zip Code :

Work Area : Response / Removal  
Work Area Code : RS  
Activity : Oil Spill w/ FPN - Reimbursable Incident Specific  
Activity Code : Z\*  
Operable Unit :  
Emergency Code :  
FPN : E16620  
Performance Based : No

Authorized TDD Ceiling :	Amount	LOE (Hours)
Previous Action(s) :	\$0.00	0.00
This Action :	\$40,000.00	0.00
New Total :	\$40,000.00	0.00

Specific Elements :  
See Schedule

Description of Work :  
See Schedule

Region Specific :  
CERCLIS :  
Misc 2 :

Accounting and Appropriation Information:										SFO:
Line	Budget / FY	Approp	Budget	Program Element	Object Class	Site Project	Cost	DCN Line-ID	Funding Category	TDD Amount
1	16	H	06LA	303D91	2505	Z600	C001	1606HRC013-001	OPA SITE	\$40,000.00

U.S. EPA, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

Vendor: WESTON SOLUTIONS, INC.

TDD #: 2/WESTON-042-16-020

Amendment #:

Contract #: EP-W-06-042

<b>Project Officer :</b> Will LaBombard  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code:</b> <b>Phone Number :</b> 214-665-7199 <b>Fax Number :</b>
<b>Contracting Officer Representative</b> Bryant Smalley  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> 214-665-7368 <b>Fax Number :</b>
<b>Contract Specialist:</b> Michael J. Pheeny  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> 214-665-2798 <b>Fax Number :</b>
<b>Contracting Officer :</b> Michael J. Pheeny Electronically Signed by Michael J. Pheeny 08/30/2016 <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> 214-665-2798 <b>Fax Number :</b>
<b>Other Agency Official</b>  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> <b>Fax Number :</b>

Specific Elements: Assess -incident and response, Document -written and photographic documentation of incident and response, Provide -technical support, mapping of drainage / site locations, AOC report, website updates.

Description of Work: The initial funding ceiling is set at \$40,000.

Collect facts regarding the discharge or release to include its source and cause, - Analyze the nature amount and location of discharged or released materials, - Analyze the probable direction and time of travel of discharged or released materials, - Analyze the potential impact on human health welfare and safety and the environment posed by the release of contaminants or pollutants and discharge of oil, -Maintain a site logbook. - Provide analysis of discharges or releases posing a substantial threat to the public health or welfare of the United States, - Identify active or historical facility processes or operations that may contribute to the release or threat of release of hazardous substances pollutants contaminants or discharge of oil, - Develop site specific Health and Safety Plans (HSPs), - Observe and document federal state and private actions taken to conduct a response action. 3 Disseminate EPA-approved Information to the public, - Conduct deed and title searches, -Identify Responsible Parties (RP), - Develop public information summaries for Internet distribution, Support EPA in responding to the release or threat of release of oil or petroleum products. Coordinate Final Report with OSC. Alternate OSC GARY MOORE

Contractor shall provide documentation in support of the invoice. Documentation shall include: time sheets with description of work completed, subcontractor invoices with explanation of work provided, documentation to support internal/external equipment rentals, travel expense reports with receipts, purchases made dedicated to the project with explanation and receipts, and any other documentation that contractor determines applicable. This documentation shall be submitted with the monthly vouchers in an electronic format deliverable to the PO/CO supporting the time period and costs claimed in the invoice. Additionally, contractor shall provide a final cost package deliverable at the completion of the project. The deliverable shall include all documents previously sent to EPA rolled up into one document which includes: the Technical Direction Document (TDD), Technical Monthly Progress reports (TPRs), invoices and all supporting cost documentation described above. Contractor shall provide two electronic versions of the final deliverable: one redacted and one unredacted. On the unredacted electronic version, the Contractor shall highlight all information that is Confidential Business Information.

U.S. EPA, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733  
Vendor : WESTON SOLUTIONS, INC.

TDD # : 2/WESTON-042-16-020  
Amendment # : 001  
Contract # : EP-W-06-042

TDD Title :Lard Oil Company  
Purpose : INCREMENTAL FUNDING  
  
Priority : HIGH  
Overtime Authorized : No  
Invoice Unit :

Verbal Date : 08/19/2016  
Start Date : 08/19/2016  
Completion Date : 01/13/2017  
Effective Date : 08/19/2016

SSID : V6RW  
Project/Site Name : LARD OIL COMPANY  
Project Address : 914 Florida Ave. SW  
County : Livingston  
City : Denham Springs  
State : LA  
Zip Code :

Work Area : Response / Removal  
Work Area Code : RS  
Activity : Oil Spill w/ FPN - Reimbursable Incident Specific  
Activity Code : Z\*  
Operable Unit :  
Emergency Code :  
FPN : E16620  
Performance Based : No

Authorized TDD Ceiling :	Amount	LOE (Hours)
Previous Action(s) :	\$40,000.00	0.00
This Action :	\$28,000.00	0.00
New Total :	\$68,000.00	0.00

Specific Elements :  
See Schedule

Description of Work :  
See Schedule

Region Specific :  
CERCLIS : Misc 2 :

Accounting and Appropriation Information:										SFO:
Line	Budget / FY	Approp	Budget	Program Element	Object Class	Site Project	Cost	DCN Line-ID	Funding Category	TDD Amount
1	16	H	06LA	303D91	2505	Z600	C001	1606HRC013-001	OPA SITE	\$68,000.00

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U.S. EPA, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

Vendor: WESTON SOLUTIONS, INC.

TDD #: 2/WESTON-042-16-020

Amendment #: 001

Contract #: EP-W-06-042

<b>Project Officer :</b> Will LaBombard  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code:</b> <b>Phone Number :</b> 214-665-7199 <b>Fax Number :</b>
<b>Contracting Officer Representative</b> Bryant Smalley  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> 214-665-7368 <b>Fax Number :</b>
<b>Contract Specialist:</b> Michael J. Pheeny  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> 214-665-2798 <b>Fax Number :</b>
<b>Contracting Officer :</b> Michael J. Pheeny Electronically Signed by Michael J. Pheeny 09/08/2016 <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> 214-665-2798 <b>Fax Number :</b>
<b>Other Agency Official</b>  <div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>(Signature)</div> <div>(Date)</div> </div>	<b>Branch Mail Code :</b> <b>Phone Number :</b> <b>Fax Number :</b>

**Specific Elements:**

Base ORIG - Assess -incident and response, Document -written and photographic documentation of incident and response, Provide -technical support, mapping of drainage / site locations, AOC report, website updates.

**Description of Work:**

Amendment 001 - Increase the TDD ceiling by \$28,000 (for a new ceiling of \$68,000) so that work can continue.

Base ORIG - The initial funding ceiling is set at \$40,000.

Collect facts regarding the discharge or release to include its source and cause, - Analyze the nature amount and location of discharged or released materials, - Analyze the probable direction and time of travel of discharged or released materials, - Analyze the potential impact on human health welfare and safety and the environment posed by the release of contaminants or pollutants and discharge of oil, -Maintain a site logbook. - Provide analysis of discharges or releases posing a substantial threat to the public health or welfare of the United States, - Identify active or historical facility processes or operations that may contribute to the release or threat of release of hazardous substances pollutants contaminants or discharge of oil, - Develop site specific Health and Safety Plans (HSPs), - Observe and document federal state and private actions taken to conduct a response action. ; Disseminate EPA-approved Information to the public, - Conduct deed and title searches, -Identify Responsible Parties (RP), - Develop public information summaries for Internet distribution, Support EPA in responding to the release or threat of release of oil or petroleum products. Coordinate Final Report with OSC. Alternate OSC GARY MOORE

Contractor shall provide documentation in support of the invoice. Documentation shall include: time sheets with description of work completed, subcontractor invoices with explanation of work provided, documentation to support internal/external equipment rentals, travel expense reports with receipts, purchases made dedicated to the project with explanation and receipts, and any other documentation that contractor determines applicable. This documentation shall be submitted with the monthly vouchers in an electronic format deliverable to the PO/CO supporting the time period and costs claimed in the invoice. Additionally, contractor shall provide a final cost package deliverable at the completion of the project. The deliverable shall include all documents previously sent to EPA rolled up into one document which includes: the Technical Direction Document (TDD), Technical Monthly Progress reports (TPRs), invoices and all supporting cost documentation described above. Contractor shall provide two electronic versions of the final deliverable: one redacted and one unredacted. On the unredacted electronic version, the Contractor shall highlight all information that is Confidential Business Information.

U.S. EPA, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733  
Vendor : WESTON SOLUTIONS, INC.

TDD # : 2/WESTON-042-16-020  
Amendment # : 002  
Contract # : EP-W-06-042

TDD Title :Lard Oil Company  
Purpose : INCREMENTAL FUNDING  
  
Priority : HIGH  
Overtime Authorized : No  
Invoice Unit :

Verbal Date : 08/19/2016  
Start Date : 08/19/2016  
Completion Date : 02/17/2017  
Effective Date : 08/19/2016

SSID : V6RW  
Project/Site Name : LARD OIL COMPANY  
Project Address : 914 Florida Ave. SW  
County : Livingston  
City : Denham Springs  
State : LA  
Zip Code :

Work Area : Response / Removal  
Work Area Code : RS  
Activity : Oil Spill w/ FPN - Reimbursable Incident Specific  
Activity Code : Z\*  
Operable Unit :  
Emergency Code :  
FPN : E16620  
Performance Based : No

Authorized TDD Ceiling :	Amount	LOE (Hours)
Previous Action(s) :	\$68,000.00	0.00
This Action :	\$3,500.00	0.00
New Total :	\$71,500.00	0.00

Specific Elements :  
See Schedule

Description of Work :  
See Schedule

Region Specific :  
CERCLIS : Misc 2 :

Accounting and Appropriation Information:										SFO:
Line	Budget / FY	Approp	Budget	Program Element	Object Class	Site Project	Cost	DCN Line-ID	Funding Category	TDD Amount
1	16	H	06LA	303D91	2505	Z600	C001	1606HRC017-001	OPA SITE	\$3,500.00

U.S. EPA, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

Vendor: WESTON SOLUTIONS, INC.

TDD #: 2/WESTON-042-16-020

Amendment #: 002

Contract #: EP-W-06-042

**Project Officer :** Will LaBombard

**Branch Mail Code:**

**Phone Number :** 214-665-7199

**Fax Number :**

**Contracting Officer Representative** Bryant Smalley

**Branch Mail Code :**

**Phone Number :** 214-665-7368

**Fax Number :**

**Contract Specialist:** Michael J. Pheeny

**Branch Mail Code :**

**Phone Number :** 214-665-2798

**Fax Number :**

**Contracting Officer :** Michael J. Pheeny

**Branch Mail Code :**

Electronically Signed by Michael J. Pheeny 11/07/2016

**Phone Number :** 214-665-2798

**Fax Number :**

**Other Agency Official**

**Branch Mail Code :**

**Phone Number :**

**Fax Number :**

U.S. EPA, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

TDD #: 2/WESTON-042-16-020

Amendment #: 002

Contract #: EP-W-06-042

Vendor: WESTON SOLUTIONS, INC.

**Specific Elements:**

Base ORIG - Assess -incident and response, Document -written and photographic documentation of incident and response, Provide -technical support, mapping of drainage / site locations, AOC report, website updates.

**Description of Work:**

Amendment 002 - Amendment Extends POP and Increases Funding by \$3,500 (for a new ceiling of \$71,500) so that work can continue.

All Other Specific Elements and SOWs remain the same as previous version.

Amendment 001 - Increase the TDD ceiling by \$28,000 (for a new ceiling of \$68,000) so that work can continue.

Base ORIG - The initial funding ceiling is set at \$40,000.

Collect facts regarding the discharge or release to include its source and cause, - Analyze the nature amount and location of discharged or released materials, - Analyze the probable direction and time of travel of discharged or released materials, - Analyze the potential impact on human health welfare and safety and the environment posed by the release of contaminants or pollutants and discharge of oil, -Maintain a site logbook. - Provide analysis of discharges or releases posing a substantial threat to the public health or welfare of the United States, - Identify active or historical facility processes or operations that may contribute to the release or threat of release of hazardous substances pollutants contaminants or discharge of oil, - Develop site specific Health and Safety Plans (HSPs), - Observe and document federal state and private actions taken to conduct a response action. ; Disseminate EPA-approved Information to the public, - Conduct deed and title searches, -Identify Responsible Parties (RP), - Develop public information summaries for Internet distribution, Support EPA in responding to the release or threat of release of oil or petroleum products. Coordinate Final Report with OSC. Alternate OSC GARY MOORE

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